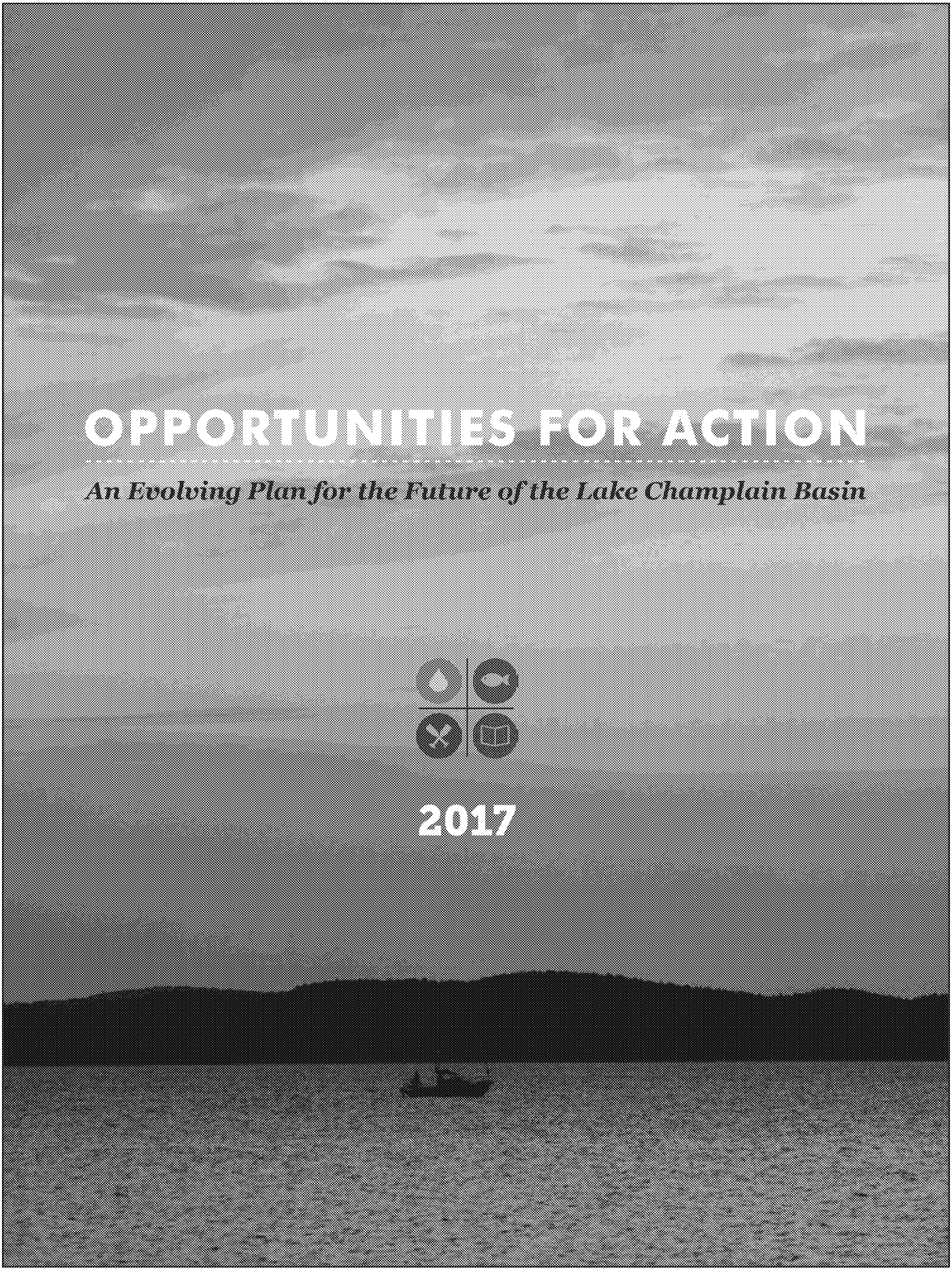
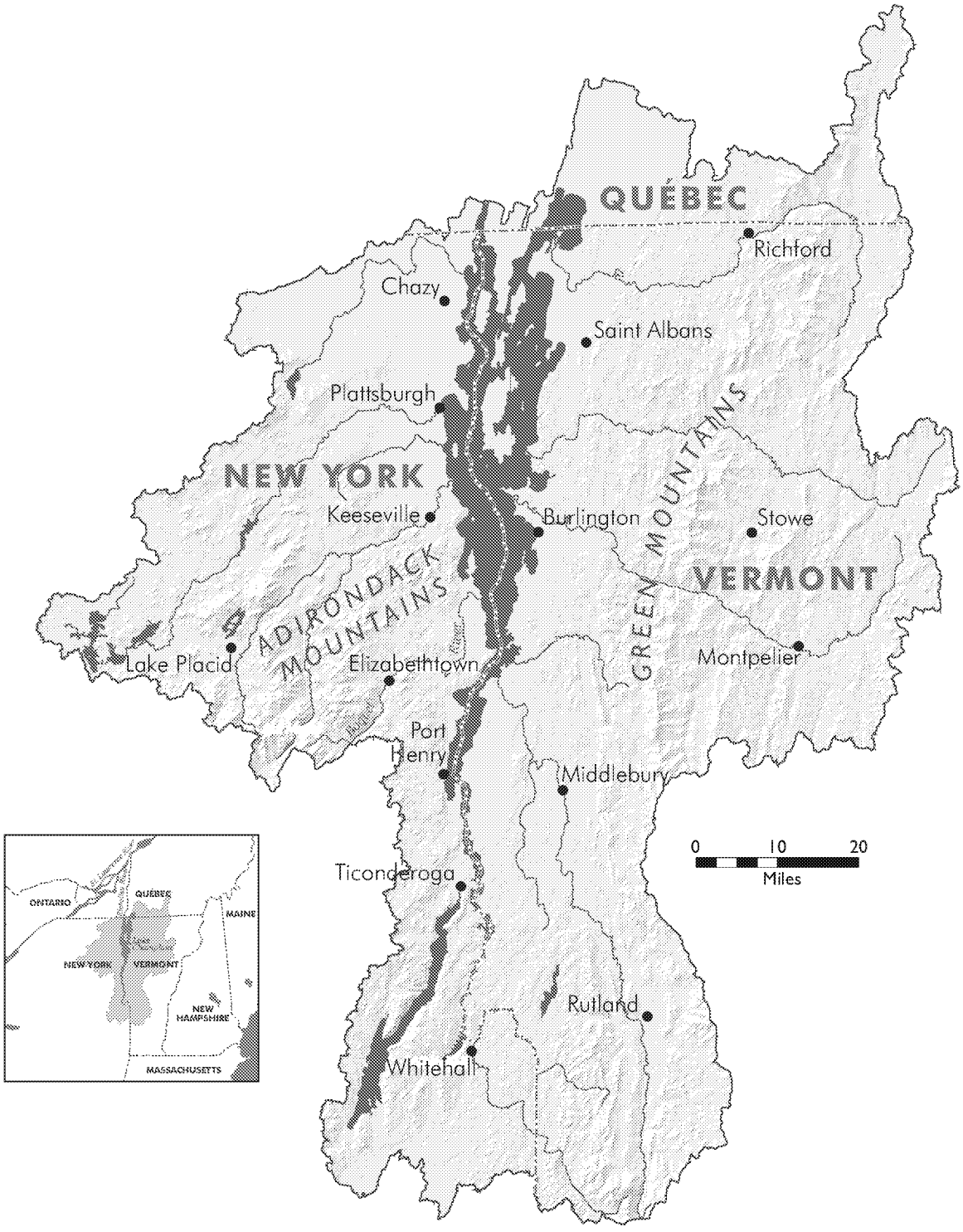


OPPORTUNITIES FOR ACTION

An Evolving Plan for the Future of the Lake Champlain Basin

2017

The Lake Champlain Basin



To the Citizens of the Lake Champlain Basin:

On behalf of the States of New York and Vermont and the U.S. Environmental Protection Agency, we are pleased to approve this revision of *Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin*.

Opportunities for Action provides a comprehensive overview of the scope and mission of the Lake Champlain Basin Program. The 2017 revision of the plan highlights several critical objectives to address our goals to achieve clean water, healthy ecosystems, and thriving communities, and to continue building an informed and involved public.

With our approval of this plan comes a commitment from our agencies, to the extent of our respective authorities, to maintain and build our support toward the management goals for Lake Champlain outlined herein. *Opportunities for Action* was first approved in 1996; this fourth version of the plan signifies a continued commitment of federal and state partnerships working toward common goals highlighted in this plan. The 2017 plan builds off the recent successes of State and Federal partnerships in the Lake Champlain Basin. This plan calls for focusing Lake Champlain Basin Program resources to 1) advance our understanding of issues facing Lake Champlain, 2) directly solve watershed problems contributing to the Lake's pollution and degraded ecosystem, and 3) promote individual and community actions to improve Lake Champlain. Once implemented, you will see: improved information sharing that will encourage development of innovative solutions to management challenges; increased efforts to restore critical tributary corridors; more action to build on the interpretation of the region's vast cultural heritage resources; and new approaches to further engage with our stakeholders.

We call on you, the stakeholders of the Lake Champlain Basin, to join us in this commitment to restore and protect your lake for the enjoyment of future generations. Our communities can be the most powerful partnerships and voices working for Lake Champlain, and working together, in time we all can achieve our shared goals for this lake.

We congratulate the Lake Champlain Basin Program, the Lake Champlain Steering Committee, advisory committees, and staff for their work on this revision of *Opportunities for Action*. We look forward to continued cooperation among all of our partners and stakeholders to achieve the actions and goals outlined in this plan.

Philip B. Scott
Governor of Vermont

Andrew M. Cuomo
Governor of New York

Deborah A. Szaro
Acting Regional Administrator,
EPA New England

Catherine R. McCabe
Acting Regional Administrator,
EPA Region 2

Québec

Gouvernement du Québec
Le premier ministre

Message du premier ministre du Québec

Le renouvellement 2017 du Plan d'action pour le lac Champlain :
la coopération internationale au service du développement durable

Forts de leurs fructueuses collaborations établies au fil des années, le Québec, le Vermont et l'État de New York poursuivent leurs engagements en renouvelant le plan d'action pour la restauration et la protection des eaux et des ressources naturelles du lac Champlain. Intitulé *Perspectives d'action : un plan progressif pour l'avenir du lac Champlain*, ce plan demeure un modèle inspirant de démarche de développement durable et de gestion intégrée des ressources en eau.

La révision de ce plan d'action a été conduite grâce aux efforts du comité directeur du Lake Champlain Basin Program (LCBP), dont le rôle est inscrit dans l'Entente de coopération en matière d'environnement relativement à la gestion du lac Champlain qui lie les gouvernements du Québec, du Vermont et de l'État de New York depuis 1988. Le Québec est membre de ce comité directeur et, à ce titre, il entend continuer de jouer pleinement son rôle dans la gestion intégrée du bassin du lac Champlain.

Les objectifs du plan d'action 2017 du LCBP ont été établis en s'appuyant sur une large consultation des organisations intéressées. Ils tiennent aussi compte des recommandations des citoyens soucieux de restaurer et de protéger les ressources écologiques du bassin, tout en préservant les activités économiques essentielles de la région. Le plan propose des actions en ce sens, encourageant ainsi le développement d'une communauté prospère, unie et impliquée.

Le développement durable et la lutte contre les changements climatiques font partie intégrante de la nouvelle politique internationale du Québec *Le Québec dans le monde : s'investir, agir, prospérer*. L'importance des collaborations régionales et internationales, comme celle entourant le lac Champlain, y est d'ailleurs soulignée.

C'est donc avec enthousiasme que le Gouvernement du Québec remercie et félicite le LCBP pour le travail accompli et s'engage de nouveau à participer activement, aux côtés de ses partenaires, à la gestion du lac Champlain et de son bassin, au bénéfice des générations actuelles et futures.

Philippe Couillard

Québec

Gouvernement du Québec
Le premier ministre

Message from the Premier of Québec

The renewal of the Lake Champlain 2017 Action Plan:
International cooperation in the service of sustainable development

Encouraged by the successful collaborations forged over the years, Québec, alongside the states of Vermont and New York, seek to pursue this engagement by renewing the action plan to restore and protect the waters and natural resources of Lake Champlain. Entitled *Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin*, this plan is and will remain an inspiring model of sustainable development policy and the integrated management of water resources.

This action plan was revised thanks to the efforts of the Steering Committee of the Lake Champlain Basin Program (LCBP), whose role is set out in the *Memorandum of Understanding on Environmental Cooperation on the Management of Lake Champlain among the Government of Québec, the State of New York and the State of Vermont*, which has been in effect since 1988. Québec is a member of this Steering Committee and, as such, intends to continue to actively play a role in the integrated management of the Lake Champlain Basin.

The objectives set in the 2017 version of the *Opportunities for Action* plan are the result of broad consultations conducted with interested organisations. They also include comments and recommendations made by residents concerned with the restoration and protection of the Basin's ecological resources, while maintaining the vital economic activity that is so essential to the region. The 2017 Action Plan suggests a number of actions in line with this concern therefore encouraging the development of a prosperous, united and involved community.

Sustainable development and the fight against climate change are both integral parts of Québec's new International Policy "Québec on the world stage: involved, engaged, thriving" and this document highlights the importance of regional collaborations such as the Lake Champlain collaboration.

It is therefore with great enthusiasm that the Government of Québec congratulates and thanks the LCBP for their hard work and signals its desire to once again actively participate, alongside its partners, in the management of Lake Champlain and its basin to the benefit of current and future generations.

Philippe Couillard

The Lake Champlain Steering Committee members are pleased to recommend to the Governors of New York and Vermont and the Administrators of the U.S. Environmental Protection Agency these revisions of *Opportunities for Action*.

Richard Ball
NYS Department of Agriculture and Markets

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Chair, Education & Outreach Committee

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Richard Balla
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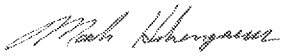

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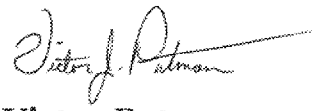

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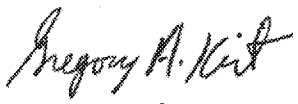

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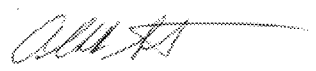

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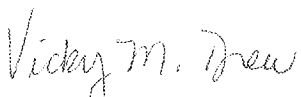

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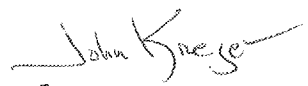

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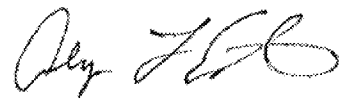

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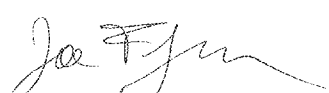

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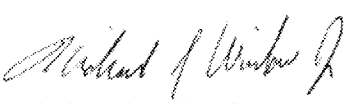

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Julie Moore
Vermont Agency of Natural Resources

Miro Weinberger
Mayor, City of Burlington

CONTENTS

INTRODUCTION

LAKE CHAMPLAIN BASIN

The Lake Champlain Basin, stretching from the peaks of the Adirondacks to the Green Mountains and north into Québec, is renowned as one of North America's most beautiful and valued resources. Residents and visitors alike enjoy Lake Champlain for swimming, drinking, fishing, and recreation. At 120 miles (193 km) long and more than 400 feet (122 m) deep, the Lake supports a complex freshwater ecosystem with diverse plant and animal species. The biological riches of the Basin, unparalleled beauty of the mountains, historic resources, agricultural landscapes, small towns and villages, and rivers that flow into the magnificent Lake provide experiences and opportunities unique to the region. Although the benefits of healthy resources are difficult to quantify, well-functioning ecosystems support a rich economy for fishing, swimming, agriculture and forestry.

While Lake Champlain remains a vibrant lake with many assets, several serious environmental problems demand action. High phosphorus levels, harmful algae blooms (HABs), toxic substances and pathogens, and aquatic invasive species threaten the Lake ecosystem and the human use and enjoyment of Lake Champlain. Natural resources, such as fish, wildlife, and plants, are threatened by invasive species, wetland loss, habitat degradation and fra gmentation, and diminished water quality. Other issues that face the Lake Champlain Basin include changes in hydrology, habitat and biodiversity, climate, impacts from continued land-use changes and habitat fragmentation, public access to the Lake, recreational user conflicts, and loss of cultural resources.

Many improvements in wastewater management and sewage treatment (point sources) have greatly reduced the contamination of beaches and shorelines and continue to ensure that drinking water supplies in all parts of the Lake are safe. Partners continue to work together to address nutrient pollution from nonpoint sources that come from our interaction with urban, agricultural, and forested landscapes to Lake Champlain. Many challenges exist to protecting the watershed's ecosystem functions so that it is best prepared to adapt to continuing climate change and the impacts of society.

CHAMPLAIN SPECIAL DESIGNATION ACT

On November 5, 1990, the Lake Champlain Special Designation Act was signed into law. Sponsored by Senators Leahy and Jeffords from Vermont and Senators Moynihan and D'Amato from New York, this legislation designated Lake Champlain as a resource of national significance. Its goal was to bring together people with diverse interests to create a comprehensive plan for protecting the future of Lake Champlain and its surrounding watershed. The act specifically required examination of water quality, fisheries, wetlands, wildlife, recreational, and cultural resource issues. The challenge has been both to identify particular problems requiring management action and to chart an integrated plan for the future of the Lake Champlain Basin. The Special Designation Act created the Lake Champlain Basin Program (LCBP), a non-regulatory partnership among the States of New York and Vermont, the Province of Québec, the U.S. Environmental Protection Agency (EPA), other federal and local government agencies, and many public and private local groups.

THE LAKE CHAMPLAIN BASIN PROGRAM

Mission

The Lake Champlain Basin Program (LCBP) works in partnership with government agencies from New York, Vermont, and Québec, private organizations, local communities, and individuals to coordinate and fund efforts that benefit the Lake Champlain Basin's water quality, fisheries, wetlands, wildlife, recreation, and cultural resources.

The LCBP works cooperatively with many partners to protect and enhance the environmental integrity and the social and economic benefits of the Lake Champlain Basin.

Lake Champlain is an enormous resource requiring special care and stewardship – this comprehensive management plan, *Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin (OFA)*, is a coordinated effort to inform, guide, and assist essential stewardship efforts for the watershed.

Role and Structure

As a partnership of provincial, state, and U.S. federal agencies, the LCBP brings cross-boundary and multidisciplinary leadership experience to coordinating and implementing the plan. The LCBP works cooperatively with many partners to protect and enhance the environmental integrity and the social and economic benefits of the Lake Champlain Basin. The LCBP is administered jointly by several agencies: U.S. Environmental Protection Agency (Regions 1 and 2), New York State Department of Environmental Conservation, Vermont Agency of Natural Resources, Québec Ministry of Sustainable Development, Environment and the Fight against Climate Change, and the New England Interstate Water Pollution Control Commission.

Lake Champlain Steering Committee membership from New York, Québec, and Vermont reflects each jurisdiction's commitment to the 2015 Memorandum of Understanding on Environmental Cooperation on the Management of Lake Champlain among The State of New York, The State of Vermont and the Government of Québec (Appendix V). It is this MOU that also describes the role, goals, and eligible membership of the Lake Champlain Steering Committee (Appendix IV). U.S. Federal Agency participation in the Lake Champlain Steering Committee, codified in *OFA*, reflects the federal commitments established in the Special Designation Act of 1990 and the Daniel Patrick Moynihan Lake Champlain Basin Program Act of 2002, which have enabled substantial U.S. federal funds to be appropriated to support the work of the LCBP. These funds are made available to the LCBP to support operations and tasks that are consistent with the federal authorizations. See Appendix I for more information about the LCBP Operating Structure, Committees (including Committee representation), and Staffing.

Funding for the LCBP

The Lake Champlain Basin Program historically has been appropriated funding by the U.S. government through the Environmental Protection Agency. More recently, the LCBP also has been supported with appropriations from the Great Lakes Fishery Commission and the National Park Service. LCBP also occasionally receives awards from other entities, such as the International Joint Commission to conduct specific projects. During the past two decades, the LCBP has sponsored a great variety of programs supported by these different sources of funding, including research, monitoring, and grants to regional organizations to promote water quality programs and install projects to improve water quality. LCBP has provided more than $13 million to support over 1,000 grants awarded to more than 600 local recipients to reduce pollution in the Lake, educate and involve the public, and gather and share information about Lake issues. The LCBP also has funded education, planning, demonstration, control, research, and monitoring projects to restore and protect water quality and the diverse natural and cultural resources of the Lake Champlain Basin.

Environmental Protection Agency

The Lake Champlain Special Designation Act (Section 120 of the Clean Water Act) was reauthorized in 2002, with the Daniel Patrick Moynihan Lake Champlain Basin Program Act, authorizing expenditures of up to $11 million per year to accomplish this goal [www.lcbp.org/PDFs/H.R.1070_LCBPAuthorization_2002.pdf]. Recent annual appropriations via the EPA have averaged over $3 million, which support numerous LCBP programs and Lake Champlain Steering Committee priorities each fiscal year, with particular focus on supporting efforts to reduce phosphorus pollution to the Lake and to reduce the occurrence of harmful algal blooms.

Great Lakes Fishery Commission

In addition to the funding appropriated to LCBP through Section 120 of the Clean Water Act, LCBP also receives support from the Great Lakes Fishery Commission (GLFC). The GLFC was established by the 1954 Convention on Great Lakes Fisheries to encourage cross-border collaborative management efforts to restore the fisheries of the Great Lakes, particularly for management of sea lamprey. The recognition of sea lamprey as a nuisance species in Lake Champlain opened an avenue for funding through the GLFC to support fisheries and water quality restoration work in Lake Champlain. The GLFC, the LCBP, and the U.S. Fish & Wildlife Service (USFWS) entered into a Memorandum of Understanding (MOU) on Native Species and Habitat Restoration and Water Quality Improvements in 2010. Approximately $3 million is currently appropriated via the GLFC toward Lake Champlain work annually, a reflection of Senator Leahy's commitment to improving the Lake Champlain ecosystem. Roughly one-third of this appropriation is available to LCBP to support watershed restoration work in Lake Champlain, with the balance directed toward sea lamprey management, fisheries research, and other habitat restoration work conducted by the U.S. Fish and Wildlife Service and researchers at the University of Vermont.

National Park Service: Champlain Valley National Heritage Partnership

The Champlain Valley National Heritage Partnership (CVNHP) was established in 2006 as a part of the National Heritage Area (NHA) programs to recognize the importance of the historical, cultural, and recreational resources of the region and to assist efforts to preserve, protect, and interpret those resources. The Lake Champlain Basin Program (LCBP) is the managing entity of the CVNHP. The LCBP coordinates its work with its official liaison to the

National Park Service (NPS), the Marsh-Billings-Rockefeller National Historical Park (MBRNHP) located in Woodstock, Vermont. The purpose of the NHA also is to enhance the quality of the tourism economy and to encourage working partnerships among state, provincial, and local governments and non-profit organizations in New York, Québec, and Vermont. As a NHA with an approved management plan, the Champlain Valley National Heritage Partnership (CVNHP) is authorized to receive up to $1 million annually, and is typically appropriated $300,000 from the National Park Service (NPS). The funds are allocated annually from the U.S. Department of Interior budget, which is determined by the U.S. Congress.

ADDRESSING THE ISSUES: *OPPORTUNITIES FOR ACTION*

Opportunities for Action is a plan developed for managing the Lake Champlain watershed. To that end, it is designed as a tool for the Lake Champlain Steering Committee. This resource is to be used as a strategic planning guide, to inform management decisions over the next several years. The broader community of governments, organizations, watershed groups, academic institutions, and other lake-user groups can use this plan to follow the priorities of the Lake Champlain Steering Committee, to use as a guide for targeting their own programs, and to identify priorities within their own specific management plans that align with those of the Lake Champlain Steering Committee. The Lake Champlain Steering Committee is a board comprised of a broad spectrum of representatives of government agencies and the chairpersons of advisory groups representing citizen lake users, scientists, and educators. The Lake Champlain Steering Committee approves the guiding priorities identified in this Plan and authorizes the use of appropriated funds to achieve these priorities. For more information about the Lake Champlain Steering Committee, please refer to the "Lake Champlain Basin Program Role and Structure" section of the Plan.

All stakeholders within the Lake Champlain watershed wish to have a clean lake. Interpretations of "clean" may vary, but people generally want a lake that is suitable for recreation, provides a clean source of drinking water that is safe and reliable, and contains fish that are safe to eat. The stakeholders of the Lake Champlain watershed are not unique in this regard, and neither are the management issues that need to be addressed. Harmful algal blooms are a global issue, as are toxin levels within sportfish, conservation of threatened and vulnerable species, and the impacts of climate change. Invasive species can drastically alter lake ecosystems, often to the detriment of recreation and the economy, and occasionally public health. Changes in climate patterns affect the lake ecosystem, reducing ice cover and lengthening the biologically productive season of the Lake. This increases the prevalence of algal blooms, improves conditions for some species, and reduces the quality of the ecosystem for others. The broader themes of this plan address some of these "aspirational goals" by reducing the frequency and toxicity of harmful algal blooms, reducing the impact of invasive species and eliminating pathways for new invasions, and restoring native species, such as lake trout and Atlantic salmon.

Opportunities for Action 2017 identifies a suite of task areas to address these concerns. The plan outlines priority goals, objectives, and strategies for the LCBP. Sound science is critical to these efforts, and it forms the basis of the work described in this plan. Long-term monitoring of the Lake Champlain ecosystem's health is the foundation of this scientific approach, and is critical for conducting research and measuring the success or weaknesses of the plan.

The jurisdictions governing the Lake Champlain Basin—the governments of Québec, New York, Vermont, and U.S. federal agencies—have specific statutory requirements to establish and to achieve water quality standards. They each also have the ability to raise revenue and to enforce laws that accomplish these responsibilities. For example, the achievement of numeric phosphorus load reductions to achieve in-lake concentration standards are established as jurisdictional obligations in Vermont and New York. LCBP's congressional authorizations provide a mechanism for LCBP to serve an important role in supporting the goals of the States to meet numeric standards and to facilitate collaboration among the many agencies responsible for meeting common goals. Several inter-jurisdictional agreements advancing the stewardship of the Lake Champlain watershed have been facilitated by the LCBP, resulting in a robust culture of cross-boundary collaboration.

As the latest revision of this restoration plan has developed, particular care has been taken to acknowledge and support, but not to duplicate, the actions detailed in other existing management plans, such as the *Phosphorus TMDLs for Vermont Segments of Lake Champlain* (2016), the *Vermont Lake Champlain Phosphorus TMDL Phase I Implementation Plan* (2016), the *Lake Champlain Basin Rapid Response Action Plan for Aquatic Invasive Species* (2009), and other important stand-alone planning documents.

Sound science and targeted management efforts alone will not achieve these broad aspirational goals. The resources available to achieve these goals is limited. A clean lake and healthy watershed will require more than what the LCBP and its partners can bring to the table. Broad changes in the way society relates to the Lake—as communities, as businesses, and as individuals working and living within the Lake Champlain watershed—will be required. Fundamental shifts in the way we think each day about the water that runs off our rooftops, driveways, lawns, fields and our forests, where that runoff goes, and what it carries with it will be critical if we are to achieve these aspirational goals in the long-term. If we each take actions to reduce our contribution to runoff and nutrient pollution, we can work collectively toward a healthy and resilient lake ecosystem.

We need to consider how our educational system teaches students about their individual and collective impacts to the Lake, with emphasis on water conservation, quality, and management through individual actions. As a culture, we must think carefully about how we prioritize and fund programs that benefit the Lake, and how these programs can be sustained.

For this reason, plan implementation must involve the public and build local support through nongovernmental organizations and municipalities. Implementation must also provide a means of educating the public, elected officials, and interest groups about the science behind Lake issues to ensure these groups are accurately informed during policy development and funding decision processes.

Many cooperating agencies, organizations, and individuals have contributed their time and expertise to producing a comprehensive pollution prevention, control, and restoration plan that efficiently guides the allocation of LCBP resources. The Lake Champlain Steering Committee strives to allocate funds annually to support high priority tasks of Basin-wide importance:

- long-term monitoring of water resources,
- local plan implementation and educational program grants,
- direct pollution prevention projects,
- targeted environmental research,
- interpretation & presentation of objective science to inform resource managers, the public, and policymakers,
- numerous educational programs including substantial LCBP website resources and operation of the LCBP Resource Room at the ECHO Leahy Center for Lake Champlain,
- operational assistance to watershed organizations, and
- heritage and recreational.

RELEVER LES ENJEUX : PERSPECTIVES D'ACTION

Perspectives d'action est un plan élaboré pour la gestion intégrée du bassin hydrographique du lac Champlain. À cet effet, le plan est conçu comme un outil de gestion pour le Comité directeur du lac Champlain. Ce plan doit être utilisé comme un guide de planification stratégique et une source d'information pour les orientations de gestion du comité pour les années à venir. L'ensemble des représentants des divers paliers gouvernementaux, des organisations de bassins versants, des universités et d'autres groupes peut utiliser aussi ce plan pour suivre les priorités du Comité directeur du lac Champlain et comme référence pour identifier leurs priorités d'interventions afin qu'ils s'harmonisent avec ceux du Comité directeur du lac Champlain. Le Comité directeur du lac Champlain est un conseil réunissant un large éventail de représentants d'instances gouvernementales et les présidents de groupes consultatifs qui représentent des citoyens, des chercheurs et des éducateurs. Le Comité directeur du lac Champlain approuve les priorités générales identifiées dans ce plan et autorise l'utilisation de fonds appropriés en vue de réaliser ces priorités. Pour plus de renseignements sur le Comité directeur du lac Champlain, veuillez vous reporter à la section « Lake Champlain Basin Program Role and Structure ».

Tous les intervenants et les citoyens du bassin versant du lac Champlain souhaitent avoir un lac avec de l'eau propre. L'interprétation de « propre » peut varier, mais dans l'ensemble les gens veulent avoir un lac qui est non pollué pour fournir une source d'eau potable sécuritaire et fiable, pour avoir des poissons non contaminés et pour leurs loisirs. Les citoyens du bassin versant du lac Champlain ne sont pas uniques à cet égard, pas plus que les problèmes de gestion qui doivent être relevés. La prolifération de cyanobactéries observée au lac Champlain est aussi une problématique mondiale, a un impact sur la qualité de l'eau potable et sur les eaux récréatives tout en affectant l'intégrité écologique du plan d'eau dont la faune aquatique incluant les espèces à statut précaire. De plus, les espèces exotiques envahissantes altèrent gravement les écosystèmes lacustres souvent au détriment des loisirs, de l'économie et parfois même de la santé publique. Sans oublier les changements climatiques qui affectent l'écosystème du lac en réduisant la couverture de glace et en prolongeant la période de productivité biologique du lac. Les changements climatiques augmentent la prévalence des proliférations d'algues et améliorent les conditions de certaines espèces au détriment de d'autres espèces. Les thèmes généraux de ce plan visent certains de ces « objectifs ambitieux », notamment la réduction de la fréquence et de la toxicité des fleurs d'eau de cyanobactéries, la réduction de l'impact des espèces exotiques envahissantes en éliminant leurs voies de migration et la restauration des espèces indigènes comme le touladi et le saumon atlantique.

Perspectives d'action 2017 identifie une série de mesures pour répondre à ces préoccupations. Le plan décrit les priorités, les objectifs et les stratégies prioritaires pour le LCBP. Un fondement scientifique est essentiel à ces efforts et constitue la base du travail décrit dans ce plan. Le suivi à long terme de la santé de l'écosystème du lac Champlain est le fondement de cette approche scientifique et est essentiel pour mener des recherches et mesurer le succès ou les faiblesses du plan.

Les juridictions du bassin du lac Champlain—les gouvernements du Québec, de New York, du Vermont et des organismes fédéraux américains—ont des exigences légales spécifiques pour établir et atteindre les normes de qualité de l'eau. Elles ont chacune également la capacité de générer des revenus et d'appliquer des lois pour assumer leurs responsabilités. Par exemple, la réalisation des objectifs de réduction des charges de phosphore pour satisfaire les normes de concentration dans le lac est définie comme étant une obligation juridique au Vermont et à New York.

Le Congrès Américain confère un rôle d'assistance au LCBP pour faciliter la collaboration entre les partenaires des trois juridictions leur permettant d'assumer leurs responsabilités respectives pour atteindre les buts communs. Le LCBP a facilité la signature de plusieurs accords multipartites sur la gestion du bassin versant du lac Champlain, résultant en une solide culture de collaboration transfrontalière.

L'élaboration de cette nouvelle version du plan de réhabilitation a accordé un soin particulier à reconnaître et à soutenir, mais sans les répéter, les mesures détaillées dans d'autres plans de gestion existants, tels que *Phosphorus TMDLs for Vermont Segments of Lake Champlain (2016), Vermont Lake Champlain Phosphorus TMDL Phase I Implementation Plan (2016), Lake Champlain Basin Rapid Response Action Plan for Aquatic Invasive Species (2009),* et d'autres documents de planification stratégie.

Des données scientifiques solides et des efforts de gestion ciblés seuls ne permettront pas d'atteindre ces grands objectifs ambitieux dans un contexte de ressource limitée. La réalisation de ces objectifs nécessitera des efforts au-delà de la contribution que peuvent apporter le LCBP et ses partenaires. Elle nécessitera d'importants changements sociétaux notamment dans la manière dont nous pensons et agissons en tant que collectivités, entreprises et personnes qui œuvrent et vivent dans le bassin versant du lac Champlain. En effet, le rapport au lac et à son bassin versant est important. La façon dont nous agissons et pensons quotidiennement à l'eau qui ruisselle de nos toits, nos allées, nos pelouses, nos champs et nos forêts sera critique si nous voulons atteindre ces objectifs ambitieux à long terme. Si chaque citoyen du bassin versant peut faire un geste pour réduire la pollution, cela permettra d'améliorer collectivement la qualité de l'eau et l'écosystème du lac Champlain. Dans ce contexte, nous devons réfléchir soigneusement à la façon dont nous soutenons les programmes et leurs modes de financement. Nous devons aussi revoir la façon dont notre système d'enseignement sensibilise aux questions d'impacts individuels et collectifs sur le lac en mettant l'accent sur la conservation, la qualité et la gestion de l'eau par des actions individuelles. Nous devons réfléchir attentivement à la façon dont nous privilégions et finançons les programmes qui profitent au lac et la façon dont ces programmes peuvent être soutenus.

Pour cette raison, la mise en œuvre du plan doit impliquer le public et créer un soutien local par le biais d'organisations non gouvernementales et des municipalités. La mise en œuvre doit également fournir un moyen d'éduquer le public, les élus et les groupes d'intérêt sur une base scientifique afin de s'assurer que ces groupes sont correctement informés lors de l'élaboration des politiques et des processus de décision de financement.

De nombreuses personnes, organisations et agences ont contribué de leur temps et leur expertise à produire un plan exhaustif de prévention, de contrôle et de restauration qui oriente efficacement l'allocation des ressources de la LCBP. Le Comité directeur du lac Champlain s'efforce d'allouer des fonds chaque année pour soutenir les actions très prioritaires et importantes pour l'ensemble du bassin du lac Champlain, notamment :

- suivi à long terme de la qualité de l'eau,
- la mise en œuvre du plan et subventions aux programmes éducatifs avec les intervenants locaux
- projets de prévention directe de la pollution,
- la recherche ciblée sur l'environnement,
- l'interprétation et l'utilisation de données scientifiques objectives pour informer les gestionnaires des ressources, le public et les responsables politiques,
- nombreux programmes éducatifs, notamment d'importantes ressources sur le site du LCBP et le fonctionnement de la salle de ressources du LCBP au ECHO Leahy Center for the Lake Champlain,
- soutien opérationnel aux organismes de bassins versant,
- programmes patrimoniaux et récréatifs conformes aux objectifs du Plan de gestion du patrimoine national de la vallée de Champlain (qui est intégré à Perspectives d'Action 2016).

ACCOMPLISHMENTS SINCE 2010

Since the Plan was last updated in late 2010, the LCBP and the CVNHP have awarded over $13 million in grants. Many of these grants were augmented by non-federal matching funds or other federally-funded programs (Appendix II).

More than 75 grants, amounting to more than $2 million, were awarded to conduct aquatic invasive species outreach campaigns and to support work to prevent new invasions. Nearly 50 projects and $1 million helped improve aquatic and riparian habitat, including the planting of 58,000 trees, restoration of over four miles of shoreline, and conservation or restoration of 891 acres of important land parcels. Close to $5 million in LCBP funds supported important monitoring and research programs on Lake Champlain and its watershed. These programs continue to inform and improve the efficacy of management decisions at all levels of government. More than $4 million supported installation of Best Management Practices to reduce pollution from nutrients, sediment, and other contaminants from agriculture, forested, and developed lands. LCBP technical staff facilitated meetings, served as grant officers, and ensured that all environmental data collected under LCBP-funded projects were of high quality and could be reproduced where practical.

LCBP supported more than 80 projects totaling nearly $500,000 that focused on public education and outreach. These projects worked to build school outreach programs, summer youth programs, and community development. These programs connected with more than 15,000 stu-

dents across the watershed and over 140,000 visitors to the LCBP Resource Room in the past 7 years at the ECHO Leahy Center for Lake Champlain. LCBP staff also worked to improve messaging and communications across several LCBP-hosted websites, through development of outreach materials, including two releases of the State of the Lake report (2012 and 2015), and many other venues.

Nearly 40 projects, supported by more than $380,000 in grants, worked toward meeting goals outlined in the Champlain Valley National Heritage Partnership management plan. CVNHP grants supported programs to improve interpretation of important historic sites and events across the Heritage area, promotion of recreational opportunities, and cultural and historical research. These funds also supported three voyages of the Lois McClure, a replica canal schooner maintained and operated by the Lake Champlain Maritime Museum. CVNHP staff assisted with the development of 62 interpretive wayside exhibits, placed at important historical sites across the Heritage area. Staff also developed numerous guides, rack cards, maps, and other outreach materials promoting recreational opportunities throughout the region.

KEY FUNCTIONS OF *OPPORTUNITIES FOR ACTION*

Coordinate Programs and Implementation Activities

Coordination of the work conducted in multiple political jurisdictions by numerous federal and state resource agencies, regional and local governments, private-sector stakeholders, nonprofit organizations, residents, and visitors is critical to effective management of the Lake Champlain Basin. By coordinating management efforts and the dispersal of resources, and facilitating dialogue and the exchange of data and information, the LCBP helps to ensure efficient management that reduces redundancy among partners.

Support Local Level Implementation and Involve the Public

On-the-ground work conducted at the local level by watershed groups, lake associations, conservation districts, and educational institution is the cornerstone of a successful restoration effort. Local residents who are most directly affected by an issue are often best able to address the issue. Many communities have existing resources and organizations to help implement programs, but may lack technical expertise, adequate funding, or access to additional human and financial resources. Building local capacity for plan implementation requires strengthening technical assistance to community groups and may require additional financial support for local programs.

A public that understands the Basin's water quality and resource management issues can make informed choices about the long-term protection and restoration of the Lake. For this reason, public information and outreach efforts have been a core function of the LCBP's work since its establishment. Informing the public about how to change personal and collective behaviors and providing opportunities to change those behaviors are critical steps in reducing our impact on Lake Champlain. Furthermore, involving the public in planning and implementation increases both the sphere of responsibility for action and support for recommended policy actions.

Measure and Monitor Success Relative to Benchmarks

Monitoring progress toward established goals is a critical component of watershed management. Tracking of this kind hinges on the availability of reliable data that informs key ecosystem indicators of watershed health. Evaluation of trends related to these indicators leads to the adjustment of management actions and funding priorities. In this way, monitoring ensures accountability to the public. The triennial *State of the Lake* report, which summarizes the status and trends of these indicators, is the LCBP's primary outlet for communicating this process to the public.

In addition, the LCBP will work in collaboration with Federal, State and Provincial partners to track the success of specific management initiatives. Beginning with the completion of the federal fiscal year 2016 (October 2015-September 2016), LCBP will provide an annual report of LCBP-funded accomplishments for our State and Federal partners to use in tracking performance measures within their unique accounting systems. This approach will reduce the risk of "double counting" management interventions, while also ensuring that management interventions funded solely by the LCBP are included within the respective State and Federal accounting systems.

Each of the four goals of the 2017 plan identifies "Anticipated Outcomes" for objectives and task areas. These targets reflect anticipated numbers of management interventions, funding for research programs, audiences for outreach campaigns, and recreation programs. This information will be provided in our Annual Report to our State and Federal partners to use in their performance tracking systems.

Promote and Advise Partner Communications

Protection and restoration of the Basin relies on continued input and support from numerous individuals and groups. Decisions concerning the management of the resources in the Lake Champlain Basin must be made through a consensus-based, collaborative process that encourages the expression and understanding of diverse viewpoints. This process helps integrate economic and environmental considerations into management actions and ensures that a focus on implementation at the local level is maintained. Through its committees and the partner workgroup in which it participates, the LCBP helps to ensure that the numerous stakeholders working on Basin issues communicate regularly.

LCBP Committees

LCBP staff will continue to coordinate and facilitate regular meetings of the Lake Champlain Steering Committee, the Executive Committee, and its three advisory committees: Technical, Education & Outreach, and Heritage Area Partnership. These committees are charged with developing annual budget priorities, informing project workplans and providing recommendations on draft project reports. Subcommittees, including the Aquatic Nuisance Species Subcommittee and Toxic Substances Workgroup of the Technical Advisory Committee, meet ad hoc to focus on specific issues and share information.

Federal Partners Workgroup

The Lake Champlain Federal Partners Workgroup consists of many of the U.S. Federal agencies working toward goals in the Lake Champlain watershed. These partners include the core group of Federal agencies that are signatories of *Opportunities for Action*, as well as several other agencies. Federal agencies formally participating in the Workgroup through an Memorandum of Understanding include the USEPA, National Park Service (NPS), National Resources Conservation Service (NRCS), United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), United States Forest Service (USFS), and the U.S. Geological Survey. Other agencies, including Lake Champlain SeaGrant (a program within the National Oceanic And Atmospheric Administration), participate in this group informally. These agencies allocate resources, either in the form of staff time or funding for programmatic areas including research, monitoring, trainings, infrastructure improvements or for management interventions. A renewal of the Federal Partners Workgroup MOU in 2018 may add new federal agencies to the agreement, including the U.S. Department of Transportation (USDOT), USDA-Rural Development, USDA-Farm Services Agency (FSA), Federal Emergency Management Agency (FEMA), Department of Housing and Urban Development (HUD), the Coast Guard, the National Weather Service (NWS) and others. In 2016, LCBP began coordinating communication and facilitating meetings for the group. These meetings will bring together staff from many of the Federal agencies working toward management of the Lake Champlain watershed. These meetings will provide an opportunity for agency representatives to report on recent projects, discuss upcoming initiatives and funding opportunities, and to develop new collaborative programs targeting priority management goals within the Lake Champlain Basin.

Ad hoc Meetings and Workgroups

LCBP staff frequently provide meeting facilitation for partners. Most recently, the Vermont DEC and US EPA Region 1 have called on LCBP to help coordinate and facilitate public meetings for the revision of the Vermont Lake Champlain phosphorus Total Maximum Daily Load (TMDL). Similarly, the International Joint Commission (IJC) has requested meeting facilitation services to coordinate discussions of potential flood management strategies for Lake Champlain, in response to the spring 2011 flooding event that affected many residents on the Lake Champlain shoreline as well as those downstream of Lake Champlain along the Richelieu River in Québec.

At the request of partners, LCBP frequently organizes workgroups or discussions focusing on specific issues. In 2014, staff coordinate and facilitated a workshop to consider nutrient management in Missisquoi Bay and its watershed. LCBP resources were used to arrange site facilities for the day, coordinate the meeting, facilitate the conversations during the course of the day, and to provide meeting follow-up information for participants. LCBP anticipates similar requests to facilitate cross-border (bi-state, state-provincial and bi-national) conversations, particularly in Missisquoi Bay. The program also might also engage in conversations regarding crude oil transport on railways along the Lake Champlain shoreline and the Lake's role as a corridor for energy transmission lines.

Partners In Action

Countless partners—including federal, state, and provincial agencies, watershed and conservation groups, heritage and recreation organizations, and local citizens—work to prevent pollution and protect, restore, enhance, and enjoy the water quality of the Lake Champlain Basin. Many of these partners are guided primarily by their own plans and priorities, such as the Phosphorus TMDL Implementation Plan for Lake Champlain or the Aquatic Invasive Species Rapid Response Plan. The intent of *OFA* is to provide guidance to Steering Committee and Advisory Committee members in identifying the annual budget priorities and tasks for LCBP, including its function of collaborating with and coordinating the efforts of these partners. While *OFA* focuses on the actions of agency partners and other stakeholder organizations, it also aims to improve the knowledge of lake issues among the public and the private sectors, and to encourage positive changes in stewardship behaviors.

Local Residents and Visitors

The cumulative effect of many individual actions make a substantial difference in the complex issues facing the Lake Champlain Basin. In this way, all members of the public are key partners in implementation of *OFA*. More than 600,000 people live, work, and play in the Lake Champlain Basin, which they share with more than six million annual visitors. The need for increased public involvement underlies all of the actions in the plan. Individual changes in household and workplace practices, such as maintaining septic systems properly and reducing the use of toxic chemicals in cleaning and lawn care, are needed. Citizens can volunteer for local boards, monitor their community's activities, and participate in citizen groups that work for a cleaner Lake. Visitors who bring significant tourism income and an appreciation of the region's natural assets encourage sustainable practices by local businesses. Because the efforts of agencies alone will not succeed without public involvement, *OFA* emphasizes education and outreach programs.

State and Provincial Agencies

State and provincial agencies in New York, Québec, and Vermont have several key roles in protecting the Basin's resources. They administer a number of critically important resource management programs, including water-quality protection programs, wetlands protection programs, fish and wildlife management programs, and recreation and cultural resource programs, among others. The states and province also provide technical and financial assistance, such as training for wastewater treatment plant operators and funding for local nonpoint source pollution control projects, to ensure that the appropriate people have the expertise to implement their programs.

U.S. Federal Agencies

Many of the activities necessary to improve the watershed must occur at the local and state levels. However, environmental restoration efforts in the Lake Champlain Basin often benefit from the work of federal agencies that implement key projects on the ground. Agency support of the plan is coordinated through a unique network of partnerships. Several federal agencies have signed a memorandum of understanding to facilitate their cooperation and coordination through the LCBP. Representatives of these agencies are active in many LCBP activities.

- The **USEPA** provides financial and technical support to the states and to LCBP for implementing several federal environmental programs and is responsible for implementation and enforcement of the Clean Water Act, including approval of Total Maximum Daily Loads for Lake Champlain segments, the Safe Drinking Water Act, and other key environmental laws. The agency ensures that all Americans are protected from significant risks to human health and the environment.
- The **U.S. Department of Agriculture** provides financial and technical assistance for best management practices that control nonpoint source pollution, particularly from agricultural runoff.
- The **U.S. Department of the Interior** supports the management plan through the work of three agencies.
  - » The **U.S. Fish and Wildlife Service** cooperates with the states in the management of fish and wildlife resources, plans and carries out site-specific habitat restoration projects, operates a National Wildlife Refuge and two National Fish Hatcheries that support work in the Basin, and helps ensure that the actions of other federal agencies are consistent with the needs for fish and wildlife conservation.
  - » The **National Park Service** serves as a partner through the National Heritage Areas Program to provide support, financial assistance, and advice on managing the important cultural heritage and recreational resources within the Champlain Valley National Heritage Partnership.
  - » The **U.S. Geological Survey** provides financial and technical support through stream gauge monitoring and watershed research concerning nutrients and contaminants of concern.
- The **U.S. Army Corps of Engineers** (USACE) is authorized by Section 542 of the Water Resources Development Act of 2000 (revised 2007) to provide assistance with planning, designing, and implementing projects that contribute to protection and enhancement of the Lake Champlain water quality, water supply, ecosystem, and other water-related issues while preserving and enhancing the economic and social character of the communities within the watershed. The USACE works in partnership with the LCBP to implement the Section 542 program within the Lake Champlain Basin.
- The **U.S. Department of Commerce,** through the National Oceanographic and Atmospheric Administration's National Sea Grant College Program, provides financial and technical support for research, management of fisheries and other aquatic resources, and related watershed programs operated by Lake Champlain Sea Grant.

New England Interstate Water Pollution Control Commission (NEIWPCC)

Established by the U.S. Congress in 1947, NEIWPCC is a 501(c)(3) corporation that also operates under a seven-state compact. NEIWPCC's primary mission is to assist member states in New England and New York by providing coordination, public education, training, and leadership in the protection of water quality and related work in the region. NEIWPCC is a federal grant recipient and receives Section 120 funds from the EPA, as well as other federal agencies, to conduct the business and financial affairs of the LCBP, including staffing and administration of subawards and contracts, according to its rules and procedures. In 1992, the Lake Champlain Management Conference sought NEIWPCC to administer the newly formed LCBP by managing the bulk of its personnel and financial resources according to programmatic goals laid out by the Management Conference (and subsequently the Lake Champlain Steering Committee), a responsibility which NEIWPCC accepted. The role of NEIWPCC in administering finances for the LCBP was further codified in the Great Lakes and Lake Champlain Act of 2002 (Clean Water Act §120), in which NEIWPCC was named alongside the States of Vermont and New York as an entity authorized to receive funding from the U.S. EPA to administer the LCBP. LCBP operations handled by NEIWPCC conform to its Quality Management Plan, approved by the USEPA.

Local Governments

Most of the solutions to problems affecting the Basin, such as nonpoint source pollution from urban and agricultural land uses, failing septic systems, planning for future development, and recreation conflicts, are best implemented at the local level. The plan identifies several actions through which the LCBP can assist local governments to address these matters. Key partners likely to implement such

actions are Select Boards, local boards and commissions. Because local governments have primary authority over planning—and increasingly, financial responsibility—for the impact of their transportation infrastructure, it is essential that they incorporate a watershed planning focus into their work.

Regional Government Organizations

Watersheds cross town boundaries, and one town acting alone may not be sufficient to address a particular issue. Regional organizations, such as the county planning offices in New York, Municipalité Régionale de Comté (Regional Municipalities) in Quebec, and the Regional Planning Commissions in Vermont, work with a number of jurisdictions to coordinate efforts that address issues of mutual concern. They will continue to be key partners in focusing implementation efforts through a watershed approach to planning and ensuring that the recommendations of the plan are carried out equitably.

Legislative Bodies

Legislative bodies in the Basin are responsible for enacting laws and appropriating funds for many programs important to the Lake. Consistent policies in New York, Québec, and Vermont help to ensure effective and equitable management. The LCBP seeks opportunities to facilitate coordination among the lawmaking bodies of the three jurisdictions. Successful implementation requires that legislators respond decisively and creatively to protect and enhance the resources of the Basin in the face of technical, political, and financial obstacles.

Nongovernmental Organizations

Many actions in the plan list nonprofit and citizen-based organizations as potential key partners. Watershed associations and environmental groups have long helped to organize and support local action, including water-quality monitoring, research, conservation of cultural heritage resources, educational workshops, streambank stabilization, toxin reduction initiatives, aquatic species control, public forums, and the encouragement of low-impact recreational activities. Their continued communication with the LCBP about emerging issues and priorities is invaluable.

Academic Institutions and Research Organizations

Academic institutions, research organizations, and cooperative extension programs have served vital roles in studying Lake Champlain and its Basin. Institutions such as the University of Vermont, SUNY Plattsburgh, Paul Smiths College, St. Michaels College, Institut de Recherche et de Développement en Agroenvironnement (IRDA), McGill University, Université de Sherbrooke, Cornell University, Middlebury College, Green Mountain College, Johnson State College, and others have conducted a variety of research projects on the Lake and the Basin. They also have educated students, teachers, and other citizens about Lake Champlain issues. Many actions in the plan call for research concerning lake-wide problems and emerging issues. Continued *OFA* implementation requires continued participation by academic institutions and research organizations and depends greatly on the soundness of data and information collected by them.

The Lake Champlain Research Consortium (LCRC), a multidisciplinary research and education program that includes many of these institutions, collaborates with the LCBP periodically to sponsor research symposia and conferences, and helps identify research needs and priorities related to the management issues in the plan.

Coordinating Organizations

The need for state and international communication and cooperation regarding the management of the Lake Champlain Basin has been apparent since the 1940s. Numerous successful efforts have brought the two states and countries together to deal with common issues since that time.

The Lake Champlain Fish and Wildlife Management Cooperative was created through written agreement in 1973 by the USFWS, the NYSDEC, and the Vermont Department of Fish & Wildlife. The Cooperative Agreement, which was updated in 1995, created a Policy Committee consisting of program directors from the three agencies and management and technical committees of agency staff. Organizations in Québec are not formal partners with the Cooperative but coordinate and communicate with the Cooperative.

International Treaty Organizations

The Boundary Waters Treaty of 1909 created the International Joint Commission (IJC) to resolve and to avoid potential disputes regarding the use of boundary waters along the U.S. and Canadian border. IJC membership is comprised of six commissioners appointed by the President of the United States and the Prime Minister of Canada. The IJC convened a Champlain-Richelieu Board during the 1970s to examine regulation of water levels in Lake Champlain and more recently supported research and planning endeavors focused in the Missisquoi River Basin. In 2016, the IJC embarked on a new planning effort to address flooding issues in the Lake Champlain-Richelieu River corridor.

Business and Industry

The activities of private businesses and chambers of commerce are a critical component of protecting the resources that support the economic vitality of the Basin. Voluntary efforts to recycle and prevent pollution are examples of how the private sector has been active in implementing elements of the plan. Educational partnerships with television and other news media have tremendously increased public awareness of the importance of individual citizen participation and community involvement in good Lake stewardship practices. Chambers of commerce have been effective at

drawing together business interests to assist in the planning process and will continue to contribute knowledge through the course of plan implementation.

Secure and Direct Funding

The cost of implementing the plan is high, though not as high as the potential costs of failing to act (LCBP Technical Report 81: An Assessment of the Economic Value of Clean Water in Lake Champlain. University of Vermont, Gund Institute for Ecological Economics, 2015). The ability to implement watershed programs relies on the availability of and access to funding sources. Each fiscal year, the LCBP receives assistance awards from the US EPA, National Park Service, and the Great Lakes Fishery Commission through NEIWPCC. These funds are the basis of its annual budget, by which essential functions are supported, including annual staffing levels, core programmatic tasks (e.g. monitoring programs), and new "capital" projects, such as targeted research projects, management interventions, heritage and recreation grants, or outreach campaigns.

The Lake Champlain Steering Committee recently has directed LCBP to supplement these traditional sources of funding with funding received from national competitive grant programs and other partnership opportunities. Funding from additional sources can bolster existing LCBP programs, or support new initiatives that meet management plan goals and address national issues of concern but have not historically been a high priority in the Lake Champlain annual budget allocations. These grants might also be used to support staff time for specific projects, freeing some funding from EPA, GLFC, or NPS awards. LCBP will work with the Steering Committee to develop a process to engage in development of public and private funding opportunities for program implementation and to allocate resources to appropriate entities based upon recommended priorities.

Conduct Sound Research

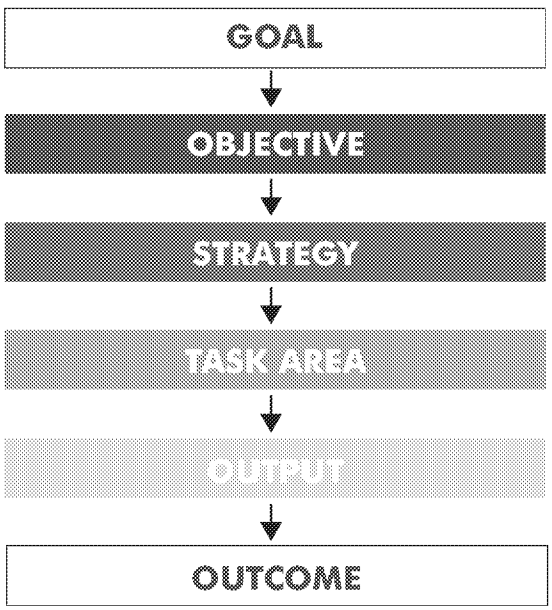
The plan identifies several areas in which research is needed. Research has been an important component of preparing and updating the plan and will continue to provide critical information as implementation evolves. Improved knowledge of the physical, chemical, biological, and social characteristics of the Lake and Basin will help resource managers make effective policy and management decisions in the future.

Regularly Update Plan Recommendations

Because environmental conditions in the Basin change over time and new technologies are routinely discovered, priorities for action in the plan may change. Some management programs may become more important, other less so. The plan should be reviewed and updated periodically (ideally every five years) to reflect these changing conditions. Moreover, the Steering Committee may periodically identify new actions requiring implementation based on reports of emerging issues from advisory committees.

OVERVIEW OF GOALS

The Lake Champlain Basin Program has identified four **goals** that represent the key resource issues facing Lake Champlain and its watershed. Each goal is addressed by **objectives, strategies, and task areas.** The plan also identifies anticipated **outputs** and **outcomes** for each task area. Objectives are the target areas for action that will help to reach the overarching goal of the chapter. Strategies outline the approaches that will be taken to achieve the objective using the general actions or tools identified in the task areas. Specific tasks in each task area will be identified as part of the budget process each year. Outputs are the products—publications, programs, tools, etc.— delivered as a result of the tasks, and outcomes are the overall environmental benefit. This cycle gives the Lake Champlain Basin Program committees an opportunity to review the task areas for each goal to determine progress made and areas for further tasks.



Goal I: Clean Water

Lake Champlain waters will be clean enough for people to swim, boat, fish and drink with minimal treatment, and will support a healthy ecosystem. Improving the water quality of Lake Champlain and its watershed is necessary to sustain diverse ecosystems and support vibrant communities and viable working landscapes. Strategies in this section focus on maintaining the current monitoring network, understanding the risk of toxic pollutants, and reducing nutrient inputs to water bodies.

Goal II: Healthy Ecosystems

Lake Champlain's aquatic ecosystems will support a rich diversity and abundance of native species, and will be resilient to climate change and free of aquatic invasive species. A healthy Lake Champlain ecosystem is critical to maintaining a high functioning Lake, but it is vulnerable to existing and future impacts. Wetland and upland

habitat, in particular riparian and shoreland habitat areas must be identified, prioritized, protected and restored in each sub-watershed. Native species, notably threatened or vulnerable species, must be conserved while the impact of aquatic invasive and non-native species is reduced through improved management strategies.

Goal III: Thriving Communities

Lake Champlain Basin communities have an appreciation and understanding of the Basin's rich natural and cultural resources, and have the capacity to implement actions that will result in sound stewardship of these resources while maintaining strong local economies. Lake Champlain is a destination for recreation and tourism, and contributes to the region's renowned quality of life. Community involvement to improve Lake Champlain and its watershed is critical to achieving common goals for Lake Champlain. Champlain Valley National Heritage Partnership objectives for preserving the region's rich cultural heritage and connecting people to the landscape are integrated into this goal.

Goal IV: Informed And Involved Public

Basin residents and visitors will understand and appreciate the Lake Champlain Basin resources, and will possess a sense of personal responsibility that results in behavioral changes and actions to reduce pollution. Public outreach is core component of the Lake Champlain Basin Program's work. This goal outlines ways to improve communication, scientific literacy, and cultural guidance to communities, partners, the media, K-12 educators, and children.

MANAGEMENT THEMES

Several common themes that define the LCBP's approach to reaching the ecosystem targets are present in all four goals outlines in this management plan. These themes reflect a whole-watershed management approach that address current and future resilience to environmental, economic, and political change.

Holistic Watershed Approach

More than 95 percent of the water in Lake Champlain passes through the 8,234 square miles (21,326 km2) of the Basin as surface and subsurface runoff before reaching the Lake. As a result, land-use activities and pollution sources throughout the Basin have a tremendous impact on the Lake and its ecosystems. Restoration or protection efforts based on watershed boundaries rather than political boundaries better address polluted or threatened areas. In addition to applying the watershed approach on a Basin-wide level, *OFA* encourages the watershed approach at a local level. This allows citizens to improve water quality based on their knowledge of their local area, and for neighboring communities to develop innovative ways to solve pollution problems within their local watersheds. Empowering local communities and their organizations to collaborate gives any effort a better chance of real, sustained success. The plan continues to use a watershed approach that links the Lake with activities in its watershed.

LCBP recognizes that all segments of the Lake Champlain watershed are important, and that each segment has its own unique management issues. Some of these segments are further from their management targets than others, particularly with respect to nutrient management issues. Several State and Federal partners have targeted specific watersheds to focus resources for nutrient pollution reduction in their respective management planning efforts. These watersheds include Missisquoi Bay, St. Albans Bay, and the South Lake (Crown Point area southward). The LCBP will work with State and Federal partners to allocate some LCBP funds for nutrient reduction in these high priority watersheds each year. These additional funds may be used for direct management interventions on the landscape, for planning initiatives, research, or short-term targeted monitoring programs designed to identify critical locations for future work.

Resilience to Climate Change

The climate in the Basin is changing and we must be prepared for an environment that may look very different in the future than the one we see today. Scientists predict a warmer, wetter watershed, which will have far-reaching impacts to tourism, water quality, frequency and toxicity of harmful algal blooms, invasive species spread, and many other management priorities. New research at the University of Vermont has shown that climate change is occurring at a faster rate in the region than originally predicted. Many local and state governments are starting to take action. Planning for these changes at a watershed scale will create more resilient natural systems and human communities. Throughout each goal of the plan, principles that address local and regional-level climate change adaptation are embedded in the strategies for implementing action.

Science-Driven Collaborative Management

Management of the Basin's resources is based on consistent, high-quality data and current scientific knowledge that is developed by a diverse array of federal, state provincial, local, and not-for-profits partners. Just as policy development and implementation of management actions require a consensus-based approach to decision making, the collection and development of the data and knowledge upon which those actions are based requires cooperation and coordination.

Integration of the Environment and the Economy

A healthy Lake Champlain is crucial to a strong regional economy, and a strong economy is good for the Lake. This plan strives to protect and restore the ecological and cultural resources of the Basin while maintaining vibrant local economies by identifying cost-effective solutions and ensuring efficient use of resources by coordinating funding efforts and management actions.

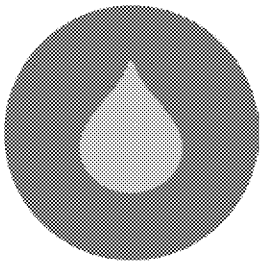
Measurable Progress

LCBP carefully tracks the outcomes of funded projects to measure progress. Since the last iteration of this management plan, the Lake Champlain Basin Program funded nearly $13 million in projects. These projects improved water quality, expanded research and monitoring programs and supported public outreach. During that time, LCBP funded nearly 330 projects ranging from curriculum development and cultural heritage preservation to aquatic invasive species spread prevention and nutrient reduction programs.

PROGRESS TRACKING METRICS

Phosphorus load reductions are required by state, federal and provincial law. The LCBP was established with the charge of coordinating efforts among government agencies working toward these outcomes. Within the constraints of the LCBP's annual budget, the Lake Champlain Steering Committee has identified priorities for the LCBP for each goal. For each of these priorities, anticipated outputs will tracked by LCBP and summarized in an annual report of activities. These outputs also will be communicated to the relevant jurisdictional partners for their internal tracking purposes. Ultimately, the collective success of the LCBP and its partners is documented in the tri-annual State of the Lake and Ecosystem Indicators Report, which tracks progress in addressing issues toward phosphorus reductions, human health and toxins, and biodiversity and aquatic invasive species.

CLEAN WATER



GOAL: Water in the Lake Champlain Basin's lakes, ponds, rivers, and streams will sustain diverse ecosystems, support vibrant communities and working landscapes, and provide safe recreation opportunities.

Lake Champlain waters will be clean enough for people to swim, boat, fish and drink, and will support a healthy ecosystem. Clean water is critical for the diverse habitats, working landscapes, and vibrant communities that sustain us. Pollution from human activities across the watershed impairs the water quality of the Lake, reduces recreational access, and decreases economic opportunities. Lake Champlain is among the 25% of lakes in the United States that are impaired by excess nutrients (USEPA 2011), and among the 40% of lakes with health advisories for fish consumption due to elevated mercury concentrations (USEPA 2011).

SCIENTIFIC UNDERSTANDING

Sound science is fundamental for action to achieve clean water in the Lake Champlain Basin. Our understanding of lake conditions relies on ongoing monitoring and targeted research. Data from monitoring networks like the Lake Champlain Long-Term Monitoring Program are critical for identifying areas in need of pollution interventions and making management decisions to allocate limited resources. New technologies and innovative research will be increasingly necessary to address threats to clean water.

NUTRIENT LOADING

While nutrients are essential for any ecosystem, excessive levels of nutrients can severely impair water quality. Excessive nutrient loading from human activities along tributaries and the lakeshore. Loading of some nutrients (e.g. nitrogen) from the atmosphere also is a concern. Outcomes for the Clean Water section of *OFA* will reflect phosphorus loading reductions identified in the Total Maximum Daily Load (TMDL) and associated implementation plans for Vermont and New York, and reduction plans identified for the Québec portion of the Missisquoi Bay watershed.

Clean water provides healthy habitat for wildlife and humans.

The Lake Champlain Steering Committee has established a series of outcomes to be achieved by the end of this five-year management plan for priority watersheds. These outcomes reflect anticipated reductions in loading of phosphorus to the Lake, based on protection, restoration, and management actions in the watershed that will have been implemented by federal, provincial, and local management agencies and organizations collectively working with the Lake Champlain Basin Program.

CONTAMINANTS

Contaminants that originate from human activities and products, including toxic substances, pharmaceutical products, pathogens, road salt, and microplastics, pose distinct and complex threats to the waterways of the Basin. Their sources, environmental fate, and effect on biota and human health often are poorly understood. The variety and environmental persistence of these substances necessitate continued monitoring and scientific investigation to prioritize management actions.

The Lake Champlain Steering Committee has identified a suite of priorities to reach the goal of clean water in Lake Champlain. LCBP will serve a role to meet each of these priorities:

- State, Federal, and Provincial agencies have established goals to reduce total phosphorus loading from tributaries draining into Missisquoi Bay, St. Albans Bay, and the South Lake.
  The LCBP will assist partners in achieving load reduction goals for these lake segments by maintaining the monitoring network. The data collected will help to document these improvements and to address task areas targeted at reducing nutrient loads, which are identified in this Plan as high priorities for LCBP support between 2017-2022.
- Reduce and strive to eliminate beach closings associated with harmful algal blooms (HABs) and elevated bacteria counts.
  The LCBP will continue to support interventions that reduce pollutant loads contributing to HABs and bacteria counts exceeding federal, state, and provincial thresholds, through the support of implementation projects. The areas of Plattsburgh, NY and St. Albans Bay, VT will be considered a high priority.
- Reduce the portion of Lake Champlain experiencing harmful algal bloom conditions at High Alert.
  The LCBP will continue to support interventions that reduce pollutant loads contributing to HABs, and continuing to monitor and track the extent of HABs and their alert level.
- Identify the level of toxic contaminants (e.g. mercury, PCBs, dioxins, furans, and organic contaminants) in sport fish tissue.
  The LCBP will continue to support regular assessments for mercury and PCBs in Lake Champlain sportfish, and will support development of new assessments of additional contaminants of concern in Lake Champlain sportfish to inform development of fish consumption advisories, where appropriate.

OBJECTIVES

Objective I.A

Improve scientific knowledge and understanding of water quality conditions and trends in Lake Champlain and the effectiveness of management approaches

Broaden support of innovative research to explore new solutions for pollution prevention and reduction by ensuring continued access to accurate information.

NOTE: Task areas identified with ** denote task areas that should be targeted with LCBP funds. Other task areas may be more appropriate for other watershed management agencies or partners to support.

Strategy	Task Area	Anticipated Output	Outcome
Strategy I.A.1: Fund and Interpret Management-oriented Research	****** **I.A.1.a: Increase accessibility of data on Lake Champlain.** Connect the research community with datasets or data managers in the Basin to inform new research projects and foster new opportunities for collaboration within the Basin and beyond.	At least one new funded research project that uses an existing Lake Champlain dataset. Support a Lake Champlain Research Conference to promote collaboration and data sharing opportunities.	Maximize use of data to address watershed issues through research. Long-term monitoring data for Lake Champlain will form the basis for new research in the watershed to guide policy decisions.
	I.A.1.b: Support innovative management approaches likely to achieve results. Solicit new management-oriented research projects that address clean water priorities, including nutrient issues, toxic substance issues, and monitoring programs that will directly inform management or policy decisions. LCBP may initiate a subcommittee in the form of an "Innovation Hub" to facilitate generation and evaluation of innovative ideas.	One new funded research project that directly informs management or policy decisions related to toxic substances, nutrient loading and cycling, or monitoring programs.	Identify new management approaches that are effective at reducing nutrients and toxic substances.
	****I.A.1.c: Increase understanding of factors affecting BMP performance and efficiency.** Support programs that explore emerging approaches to reduce nutrient, sediment, or toxin loading to the Lake through the use of new, innovative tools or by improving efficacy of	One new research program, leveraging funds from other programs where possible, that examines new tools or techniques to reduce pollutant loads to Lake Champlain.	New or improved intervention options for installation in the watershed to reduce pollutant loads.

Strategy	Task Area	Anticipated Output	Outcome
	existing tools, and by incorporating potential effects of climate change into these approaches.		
Strategy I.A.2: Fund and Interpret Monitoring Programs	****I.A.2.a: Maintain the Lake Champlain Long-Term Monitoring program.** Support of monitoring of certain chemical, physical, and biological parameters to detect changes in the Lake Champlain ecosystem.	Intact period of record and regular interpretation of Lake Champlain long-term monitoring data.	Enhanced environmental knowledge will be achieved as long-term monitoring data will continue to be available through 2022 via web access.
	****I.A.2.b: Expand Sub-Watershed Monitoring to inform targeted watershed objectives.** Focus subwatershed monitoring on 3-5 year rotations in collaboration with State and Provincial agencies to identify problem areas and document improvements from interventions at the sub-watershed level.	Develop intensive short-term period of record for selected subwatersheds, targeted installation of BMPs.	One subwatershed (HUC Level 12) will have a short-term monitoring study completed, with targeted sites for BMP interventions.
	** **I.A.2.c: Assess progress of existing water quality management programs.** Support a review of the effects of recent management decisions to inform new decisions, priorities, and management trajectories.	New management priorities informed by outcome of previous projects (decision feedback loop).	Management plan progress analysis, with recommendations for course-corrections where applicable.

Partner watershed management plans related to this strategy:

- The Lake Champlain Long-Term Water Quality and Biological Monitoring Project (LTMP) is designed to measure overall ecosystem health of Lake Champlain based on key ecosystem indicators and to assess long-term effects of management actions and other environmental changes.
- Phosphorus TMDLs for Vermont Segments of Lake Champlain, June 17, 2016. https://ofmpub.epa.gov/waters10/attains_impaired_waters.show_tmdl_document?p_tmdl_doc_blobs_id=79000
- 2002 Lake Champlain Phosphorus TMDL (NY) http://www.dec.ny.gov/docs/water_pdf/champlain_final_tmdl.pdf

Objective I.B.

Reduce Contaminants of Concern and Pathogens

Improve our understanding of which contaminants are of greatest concern in Lake Champlain, where they come from, and how to reduce their impacts on the water quality of Lake Champlain.

Strategy	Task Area	Anticipated Output	Outcome
Strategy I.B.1: Control Sources of Contaminants *Work with management partners to identify sources of pathogens and toxic substances and work to identify mechanisms or interventions to mitigate these sources.*	** **I.B.1.a: Understand Emerging Contaminants and Points of Control.** Historical toxicology studies in the Champlain Basin have focused on mercury, PCBs, and other similar pollutants.	Comprehensive review of emerging contaminants of concern , including potential sources and effects, and mitigation options. Pollution source mitigation plans for high priority contaminants, including targeting of funding sources to execute the mitigation plans.	Summary of toxicological concerns for "new-age" or emerging contaminants in the Champlain Basin.
	I.B.1.b: Support screening for raw lake water periodically for toxic substances, including herbicides, pesticides and personal care products. Monitor for and assess new pollutants for which the impacts on ecosystems are unknown, especially at raw water intakes for drinking water treatment facilities.	Database of monitoring information for suite of personal care products developed and populated.	Toxin management policy informed by new data generated to document pollutants measured in the lake, particularly at raw-water intakes.
	I.B.1.c: Fund projects to reduce public beach closures. Support new research or implementation projects that help reduce beach closures resulting from Harmful Algal Blooms or high bacteriaa levels. Target interventions for specific beaches around the Lake, factoring in potential effects of increased rainfall intensities, as predicted by recent climate change modeling.	New BMPs or infrastructure upgrades that can be installed to reduce beach closures or increasing stormwater retention capacity to reduce runoff during storm events.	Reduction in frequency of beach closures.

Strategy	Task Area	Anticipated Output	Outcome
	****I.B.1.d: Fund monitoring programs to inform consumption advisories for Lake Champlain fishes.** Support regular assessments of toxins in sportfish to provide data to keep consumption advisories current, and support assessments of new contaminants to inform advisories.	Updated data for mercury concentrations in fish tissue by 2022. Support development of cyanotoxin in sportfish dataset.	New data will be required to update fish consumption advisories for mercury concentrations in sportfish (current data will have been collected in 2016). New consumption advisories for fish collected near a harmful algal bloom, if applicable, will be in place by 2022.

Partner watershed management plans related to this strategy:

- *The Lake Champlain Toxic Substance Management Strategy* is a plan to reduce toxic contamination in Lake Champlain to promote a healthy ecosystem and protect public health as outlined in Lake Champlain's management plan *Opportunities for Action*. The Toxic Substance Management Strategy delineates strategies for monitoring and reducing several classes of toxic substances found within the Lake Champlain watershed. http://www.lcbp.org/wp-content/uploads/2012/11/69_Toxics_Strategy_September2012.pdf

Objective I.C.

Reduce Nutrient Loading

Reduce nutrient loading from all land use sectors, including agricultural lands, developed lands, forested lands, and streambanks.

Strategy	Task Area	Anticipated Output	Outcome
Strategy I.C.1: Fund Research and Watershed Interventions to Reduce Streambank Nutrient Inputs	**I.C.1.a: Fund projects to improve bank stability in critical areas of the watershed.** Improve the understanding of streambank vulnerability and quality of riparian corridors and connect rivers to their floodplains in critical watersheds.	Identify and rank vulnerable stream banks in critical watersheds for restoration and implement BMPs on five critical areas	Prioritized list of streambanks for targeting resources for interventions.
	**** I.C.1.b: Fund programs to protect or enhance river corridors for nutrient reduction and flood resilience.** Support programs to improve quality of riparian corridors and connect rivers to their floodplains in critical watersheds, factoring in data from TMDLs and the predicted effects of climate change on timing, frequency, and intensity of precipitation events.	Manage an additional 100 acres for riparian habitat quality; restore 3,000 linear feet of riparian corridor habitat, conduct outreach to at least 100 landowners for conservation of riparian habitat.	Increased areas of high-priority riparian areas conserved.

Strategy	Task Area	Anticipated Output	Outcome
Strategy I.C.2: Fund Programs to Reduce Nutrient Inputs from Agriculture *Refine mechanisms to reduce pollutant loads from agricultural sources.*	** **I.C.2.a: Provide Technical Assistance for Land Treatment Plans (LTPs) and Nutrient Management Plans (NMPs).** Provide support for farmers to develop and maintain LTPs and NMPs (and equivalent plans in Quebec) that meet the appropriate standards for other funding opportunities.	90% of farms interested in USDA programs have LTPs and NMPs complete at time of application.	Increased number of farms participating in USDA program funding and Provincial program.
	** **I.C.2.b: Research and Promote Programs to Optimize Fertilizer Applications to Reduce Nutrient Load.** Support development of programs to work with farms to calibrate fertilizer applications.	In the US; 90% of large and medium farms and 25% of small farms in critical watersheds receive fertilizer calibration training; 25% participation of all farms in non-critical watersheds.	Reduction in fertilizer applied by large and medium farms within critical watersheds through increased accuracy of application.
	I.C.2.c: Reduce acreage of flood-prone land areas in agriculture. Work with partner agencies and NGOs to identify farm fields in flood-prone areas and move them out of production or into perennial crops for soil retention and to increase resilience to climate change-related factors.	30% reduction of annual crops in flood-prone areas in critical watersheds.	Reduction in soil and crop loss on agricultural fields due to flooding.
	I.C.2.d: Help farmers meet Clean Water regulations with targeted cost-share support for small farms. Provide cost-share support to farmers for BMP projects in critical sub-watersheds.	100% cost share support for BMP applications addressing Critical Source Areas on farms in priority subwatersheds. Also provide cost-share support where possible in remaining watersheds.	Continued participation in BMP programs.

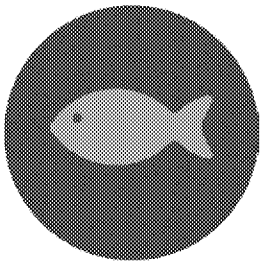
Strategy	Task Area	Anticipated Output	Outcome
	I.C.2.e: Research and Support Phosphorus Removal Opportunities from Tile Drains and Agricultural Ditches. Work with federal, state and provincial partners to support new innovative research programs to identify technologies and practices to improve phosphorus removal.	Fund one new research program to explore phosphorus removal systems in tile drains and ditches.	Informed policy on tile drainage systems to reduce impacts of tile drainage on nutrient loading to the Lake or tributary network.
	I.C.2.f: Research and support sustainable agricultural practices that address water quality concerns and also are economically sustainable. Explore water quality systems that address agricultural practices from pollution abatement and farm viability perspectives.	Support a research program to explore pollution interventions on farms that address water quality concerns and improve farm economic viability.	Examples of nutrient reduction BMPs with economic benefits to farmers identified.
Strategy I.C.3: Fund Programs to Reduce Nutrient Inputs from Developed Lands *Target inputs from stormwater runoff and wastewater treatment facilities.*	**I.C.3.a: Support training programs to WWTFs for Asset Management.** Support asset management training to provide operational, maintenance, and financial guidance to municipalities and wastewater treatment governing boards and plant operators in the management of public infrastructure investments, in order to reduce nutrient loads and contain costs.	Asset management plans in place for all high-risk WWTFs, with funding options identified.	Management plans in place to facilitate management, reduce phosphorus loading and human/mechanical errors, and funding streams to support necessary upgrades on schedule.
	I.C.3.b: Fund Research and Implementation Programs to Reduce Effective Impervious Surface Area. Address nutrient runoff from impervious surface areas in critical watersheds, incorporating predicted effects of climate change on precipitation events.	Green stormwater Infrastructure (GSI) projects implemented	Improved understanding of efficacy of interventions that reduce stormflows and associated nutrient loading from urban areas and increase resiliency to flood damage.

Strategy	Task Area	Anticipated Output	Outcome
	****I.C.3.c: Fund design and implementation of GSI/LID projects in critical areas.** Support a grant program targeting design and installation of green stormwater infrastructure (GSI) projects in critical watersheds.	Twenty new GSI projects installed or designed (shovel-ready) in critical watersheds and twenty new projects in remaining watersheds in the Basin.	Reduced stormflows from urban areas in critical watersheds.
Strategy I.C.4: Fund Programs to Reduce Nutrient Inputs from Forested Lands *Reduce pollution loads by conserving critical riparian corridors, researching and supporting BMPs in the forestry sector, and providing outreach programming. Regulations on Forested Lands*	**I.C.4.a: Fund programs to Promote Forestry Practices with Water Quality Benefits.** Support innovative and tested forestry BMPs to reduce nutrient runoff, while also protecting sensitive habitat, reducing species impacts, and improving climate change resilience.	Five new innovative and tested forestry BMPs to reduce nutrient runoff, and protect sensitive habitat and species impacts.	Enhanced suite of forestry BMPs with known pollutant reduction efficiencies and benefits to riparian habitat and associated species.
	I.C.4.b: Support Projects to Restore and Protect Riparian Forests & Corridors. Support forestry projects that reduce nutrient loading and increase stream bank stability along riparian corridors, with priority to projects that also can manage riparian invasive species spread or protect wildlife habitat.	Five conservation easements or BMPs on riparian forest corridors that reduce nutrient loading to waterways.	Improved riparian corridor stability.
	I.C.4.c: Educate and Assist Landowners to Promote Clean Water Regulations on Forested Lands. Support water quality BMP training programs associated with forested lands.	Five training workshops for water quality in forested lands targeting forest managers or landowners.	Increased implementation of best management practices and reduced pollutant load from forested lands.

Partner watershed management plans related to this strategy:

- 2016 Vermont Lake Champlain TMDL (EPA webpage)
- 2002 New York Lake Champlain TMDL
- 2016 VT Required Agricultural Practices
- 2016 Vermont Lake Champlain Phosphorus TMDL Phase I Implementation Plan
- Vermont Tactical Basin Plans

HEALTHY ECOSYSTEMS



GOAL: Ecosystems that provide clean water for drinking and recreating, and intact habitat that is resilient to extreme events and free of aquatic invasive species where diverse fish and wildlife populations will flourish.

Healthy ecosystems provide invaluable services such as native species habitat, nutrient filtration, flood resilience, and sediment retention. These ecosystems in the Lake Champlain Basin support a lake that provides clean water for drinking and recreating, and healthy fish and wildlife populations. The aim of this goal is to strengthen the aquatic ecosystem by improving connectivity, supporting restoration efforts for species of concern, and reducing the risk of new invasions by non-native species.

The Lake Champlain Basin is a large freshwater ecosystem with a rich diversity and abundance of native fish, wildlife, and plants. These native species occupy a mosaic of interconnected aquatic and terrestrial habitats, including broad open waters, tributaries, wetlands, forests, agricultural lands, and other areas. Microscopic plankton, fish, birds, other wildlife, and plants are all intrinsically linked through the Lake Champlain food web. The structure, function, and balance of the food web is closely connected to water quality, habitat diversity, land use and human health. The abundance of fish, wildlife, and plant communities within the Basin attract a wide array of recreational users, including hunters, anglers, trappers, paddlers, hikers, and bird watchers, providing a significant economic benefit to the regional economy. Natural species diversity is a highly valued part of the region's natural heritage and a critical component of the ecosystem that we all share.

HABITAT

Natural communities face many threats and have experienced significant changes in biodiversity and abundance during the last few centuries. These threats include loss, degradation and fragmentation of wetland and riparian habitat, overexploitation of highly valued species, introduction of new species to the ecosystem, and climate change.

Dams and undersized or improperly placed road-stream crossings can reduce fish and other aquatic organism habitat by interrupting passage from one stream segment to another. Poorly planned land development also can lead to reduced habitat connectivity, increased erosion and sedimentation, stream bank instability, and increased nutrient and sediment loadings in rivers resulting in further degradation and loss of aquatic habitats.

AQUATIC INVASIVE SPECIES

Aquatic invasive species (AIS) are non-native plants, animals, and pathogens that harm the environment, economy, and/or human health. AIS that become established in the Basin can pose serious threats to indigenous fish, wildlife and native plant populations, impede recreational activities, significantly alter the ecosystem of the Lake, and damage the economy of the region. Of the 50 known non-native aquatic species in Lake Champlain, about a dozen are classified as harmful AIS. Water chestnut is a particular concern because it impedes boat traffic and reduces recreational opportunities. Management of this AIS offers an opportunity for success, since several stands have been limited in range by management efforts.

AIS enter the Lake Champlain Basin through several pathways, most commonly through interconnected waterways, such as the Champlain and Chambly Canals and Richelieu River, or overland through human activities, such as boating and bait transport. Other pathways include accidental water garden releases, aquarium dumping, and illegal fish stocking. The interconnected waterways of Lake Champlain transcend the authority of any single state or jurisdiction, necessitating coordination among the different partners to address early detection, rapid response to new infestations, management of invasive species populations, and coordination of spread prevention programs. Once introduced into Lake Champlain, AIS have the potential to spread to other inland water bodies in the Basin.

Work in the Basin to prevent the spread of AIS is enhanced by regional and national collaboration that connects the Basin to the latest invasive species research, control technologies, education and outreach approaches, pathway management, and innovative partnerships. The Long-Term Monitoring Program on Lake Champlain is an essential component of aquatic invasive species early detection. For example, the first detection of spiny water flea came from a routine net tow at an established Main Lake site.

BIODIVERSITY

Maintaining a high level of biodiversity is critical for a healthy ecosystem in the face of increasing threats from habitat loss and degradation, AIS, and climate change. Rare, threatened, and endangered species, such as the pink heel splitter (a native mussel), common tern, lake sturgeon, and spiny softshell turtle, are of particular management concern and are protected under state, provincial and federal legislation. To ensure sustainable native fish populations, state and federal agencies assess and stock native and sport fish species in Lake Champlain. In addition, the Lake Champlain Fish and Wildlife Management Coopera-

tive regularly monitors populations of landlocked Atlantic salmon, lake trout, brown trout, American eel, lake sturgeon, walleye, and northern pike, and conducts targeted research on limiting factors to guide future management.

The Lake Champlain Steering Committee has identified a suite of priorities to reach the goal of healthy ecosystems in Lake Champlain. LCBP will serve a role to meet each of these priorities:

- Identify threats to species of concern from climate change
  The LCBP will maintain and expand the existing Lake Champlain monitoring sites to inform assessments of threats to critical habitat for indigenous species, impacts of invasive species, and management strategies to help increase species resilience.
- Develop comprehensive strategies for habitat protection and restoration in priority sub-watersheds of the Basin
  The LCBP will support research and monitoring efforts to inform these subwatershed-level comprehensive strategies, and to facilitate and coordinate among the partners working on these strategies.
- Increase AIS spread prevention awareness and prevent new invasions
  The LCBP will increase boat launch steward coverage and decontamination stations at public by 30% at state and provincial launches through the boat launch steward program and increase access to watercraft decontamination units at high traffic priority sites.
- Reduce the spatial presence of water chestnut in Lake Champlain
  The LCBP will maintain support of the water chestnut program through hand-harvesting or mechanical harvesting, as needed, through 2022.

OBJECTIVES

Objective II.A
Support Conservation of Vulnerable Habitat

Identify and conserve refugia and protect migration corridors will support conservation of vulnerable habitats in the Basin.

Strategy	Task Area	Anticipated Output	Outcome
Strategy II.A.1: Protect Important Riparian, Shoreland and Wetland Habitat Areas *Work with Lake Champlain management partners to conserve vulnerable lands by protecting important habitat areas including river corridors, shorelands, wetlands and other critical habitat areas.*	**II.A.1.a: Support programs to expand protection of river corridors.** Reduce impacts from land use and climate change including intense run-off events from more frequent and intense storms, and maintain connectivity in the face of climate change.	100 acres of river corridors conserved; cost per acre conserved documented	More stable stream corridors, increased shading and recruitment of woody material in the stream channel to improve fish habitat
	II.A.1.b: Support programs to increase protection of lake shorelands. Reduce the loss of shoreline habitat that results from development and armoring.	2,000 feet of critical lake shoreland protected, enhanced, or conserved, including 500 feet of shoreland in Missisquoi Bay	Shoreline best management practices decrease erosion to protect habitat and property and assist with land protection.
	II.A.1.c: Support research to identify vulnerable lands for conservation. Support research to identify critical corridors for protection that may be susceptible to high nutrient runoff and/or support critical to rare, threatened or endangered species.	Areas of high conservation need will be identified and a minimum of five projects supported to identify areas of conservation need or to assist with protection of these areas	Critical habitat preservation, species protection, nutrient loading reduction and wildlife corridors improved.

Strategy	Task Area	Anticipated Output	Outcome
	II.A.1.d: Support programs to assist with conservation of critical habitat areas. Protect habitat for rare, threatened, and endangered species of high conservation need.	Critical habitat areas identified in priority watersheds and assistance with conservation of 50 acres of critical wildlife habitat.	One large-scale research project may identify critical habitats in need of conservation in priority watersheds in the Basin or local grants will be granted to municipalities, NGOs, and planning organizations to implement conservation plans.

Partner watershed management plans related to this strategy:

- *Vermont Fish and Wildlife Department - Vermont Conservation Design:* The lands and waters identified in this project are the areas of the state that are of highest priority for maintaining ecological integrity. Together, these lands comprise a connected landscape of large and intact forested habitat, healthy aquatic and riparian systems, and a full range of physical features (bedrock, soils, elevation, slope, and aspect) on which plant and animal natural communities depend. When conserved or managed appropriately to retain or enhance ecological function, these lands will sustain Vermont's natural legacy into the future.
- *USFWS/North Atlantic LCC - Regional Conservation Opportunity Areas:* The Regional Conservation Opportunity Areas (RCOAs) project facilitated by the U.S. Fish and Wildlife Service North Atlantic Landscape Conservation Cooperative (LCC) brings together experts from Northeast 13 states, conservation organizations, and universities to identify places where the actions of individual agencies to support imperiled species and Species of Greatest Conservation Need, restore priority ecosystems, protect core landscapes, and promote connectivity between them, will have the greatest benefit for fish and wildlife across the region. The result of this collaborative effort is a suite of decision-support tools and regionally consistent datasets that offer voluntary guidance for partners working at different scales in the Northeast region to identify the best opportunities to protect land and restore habitat, and to justify those actions to stakeholders and funders.

Objective II.B
Preserve and Enhance Biodiversity

Research and evaluation of management programs will foster a better understanding of how species interact in the Lake's food web and in the surrounding watershed. Work to protect rare, threatened, and endangered species, and the selection of best management practices will help restore native species and those of high conservation need.

Strategy	Task Area	Anticipated Output	Outcome
Strategy II.B.1: Develop and Support Programs that Improve Diversity of Aquatic and Riparian Species in the Basin *Under this strategy, LCBP will work with Lake Champlain management partners to improve our understanding of the functions and threats to the Lake Champlain ecosystem, and work toward protection and restoration of native species.*	**II.B.1.a: Support research to better understand food web dynamics.** Fund research to improve understanding of lower to upper food web interactions and impacts of changing external and internal drivers, such as temperature or precipitation fluctuations, new species, or changes in abundance of existing species.	Up to three high priority aquatic organisms studied with resource management implications and specific impacts to species of interest identified (qualified or quantified)	Improved Basin-wide data for selected threatened and endangered species will provide better informed management decisions.

Strategy	Task Area	Anticipated Output	Outcome
	II.B.1.b: Assess threatened and endangered species information gaps. Support state and provincial efforts to describe information gaps for threatened and endangered or Species of Greatest Conservation Need (SGCN) species to inform management restoration efforts.	Support a species-specific research project and multiple habitat restoration projects.	Enhanced protection of threatened and endangered species through generation of critical information to inform management decisions for these species.
	II.B.1.c: Protect and restore native species. Preserve and connect critical habitat areas of native species, and reduce fragmentation by man-made structures such as roads, culverts, and other human landscape features.	Projects that improve native species restoration, aquatic organism passage, wetland restoration, or other habitat restoration interventions.	Protect and restore habitat areas that support native species.
	****II.B.1.d: Support research to assess success of current ecosystem management programs.** Review the effects of recent management decisions to inform new decisions, priorities, and management actions.	Solicit outside consultant to evaluate outcomes of management decisions to inform new management priorities, support monitoring of restoration projects to determine long-term effects	Improved understanding of the effects of funding cycles on the development of new management priorities (decision feedback loop).

Partner Management Plans related to this strategy:

- *USFWS, Lake Champlain Fish and Wildlife Conservation Office, Dwight D. Eisenhower and White River National Fish Hatcheries - Fisheries Restoration, Assessment and Research:* Restoration of natural populations of landlocked Atlantic salmon in the Lake Champlain Basin requires understanding and addressing multiple limiting factors for this priority species. The states of Vermont and New York and USFWS have established a high quality lake fishery for salmon that is supported by stocking hatchery reared yearlings in combination with a highly successful sea lamprey control program. Salmon are now entering rivers trying to spawn in the fall. The USFWS in cooperation with the states and local universities, is leading a long-term assessment and research program to enhance and restore river run salmon populations. Projects are currently focused on opportunities to improve return rates of adults to focal rivers by characterizing homing and imprinting cues and identifying physiological indicators of smoltification. Now that spawning runs of salmon have been established, USFWS is quantifying impact of thiamine deficiency (caused by eating non-native alewife) on migration and reproductive performance and assessing options for improving performance. Downstream passage of smolts through three main stem dams in one focal river as well as response to a main stem dam removal in other focal river are also being evaluated. Results from these projects demonstrate potential for rapid increases in the success of Atlantic salmon reintroduction efforts using hatchery-reared smolts combined with targeted research, assessment and adaptive management. The Dwight D. Eisenhower and White River National Fish Hatcheries are assisting the States of Vermont and New York with rearing and stocking lake trout for Lake Champlain and other lakes. The Lake Champlain Fish and Wildlife Conservation Office is also assisting Québec in restoration efforts for American eel in Lake Champlain and the greater St. Lawrence River by conducting eel surveys in Lake Champlain to monitor success of stocking efforts and new passage facilities. https://www.fws.gov/lcfwro/.
- *Strategic Plan for Lake Champlain Fisheries: 2010.* Marsden, J.E., Chipman, B.D., Pientka, B., Schoch, W.F., and Young, B.A. 2010. Great Lakes Fish. Comm. Misc. Publ. 2010-03: http://www.glfc.org/pubs/SpecialPubs/2010-03.pdf

Objective II.C

Prevent the Spread of Aquatic Invasive Species

Education and outreach to targeted audiences such as the boating community, water gardeners, anglers, and aquarium and pet owners will help prevent the spread of new and existing AIS in the Basin.

Strategy	Task Area	Anticipated Output	Outcomes
Strategy II.C.1: Preventing New Invasions: Early Detection and Rapid Response (EDRR) *Under this strategy, LCBP will work with Lake Champlain management partners to monitor for and respond to invasions of aquatic species, and to educate stakeholders about how their behavior can affect the spread of AIS.*	****II.C.1.a: Conduct and coordinate AIS monitoring (EDRR).** Support early detection of the spread of existing AIS to new bodies of water in the Basin or new arrivals of AIS to Basin waters through the Long-Term Monitoring Program (LTMP).	LTMP annual reports on AIS early detection and tracking of new AIS arrivals to the Basin.	AIS managers are aware of the arrival of new species as quickly as possible.
	****II.C.1.b: Provide AIS Rapid Response Support.** Resources for responding to new arrivals are ready to be mobilized (in the form of personnel, equipment, and funding) quickly to prevent the spread of the AIS invasion.	Rapid Response Task Force determines if containment, management or eradication are feasible for a new infestation in the Basin within weeks of a confirmed new species or spread of an existing species to a new body of water.	New AIS are contained, managed, or eradicated as quickly as possible.
	****II.C.1.c: Assist partners with rapid response and other AIS management plans.**	Implementation of targeted management responses to new invasion within timeframe identified in the Rapid Response Management Plan for the Lake Champlain Basin.	New AIS are contained, managed, or eradicated as quickly as possible.
	****II.C.1.d: Maintain involvement in regional and national AIS programs.**	The Lake Champlain Basin ANS Management Plan will be maintained and implemented annually. The LCBP and Basin issues will be represented on the national ANS Task Force and NEANS Panel.	Regional AIS spread prevention programs will prevent introduction and spread of AIS, and the public will be better informed about AIS threats.

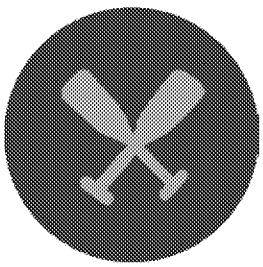
Strategy	Task Area	Anticipated Output	Outcomes
Strategy II.C.2: Reduce AIS Spread Along Pathways *Work with Lake Champlain management partners to reduce the risk of AIS transport along pathways such as the Champlain and Chambly canal systems, overland transport on boats and trailers, illegal stocking and bait use, water gardening, and aquarium dumping through targeted education and outreach campaigns aimed to change behaviors that may help to spread AIS.*	****II.C.2.a: Intercept AIS transportation on watercraft and equipment.** Education and outreach programs inform visitors of the steps they can take to help prevent the spread of invasive species by cleaning, draining, and drying their boats and equipment.	Increased number of boat launch stewards and boat wash stations on Lake Champlain and in the Basin, targeting launches or waterbodies with known AIS with outbound traffic to uninvaded waterways. This task area will produce annual program summaries.	Increased boater awareness of AIS issues and spread prevention measures they can take to reduce the risk of spreading AIS among waterbodies.
	****II.C.2.b: Support implementation of an AIS barrier on the Champlain/Chambly canals.** Research and installation of a barrier to reduce the spread of aquatic invasive species through the Champlain and Chambly canals will prevent further invasions of species from the Hudson, St. Lawrence, and Great Lakes systems.	LCBP will support a NYS Canal Corporation and USACE project to determine the feasibility of a barrier on the Champlain Canal.	The threat of introduction and spread of AIS into and out of Lake Champlain through the canal systems will be reduced or eliminated.
Strategy II.C.3: Support and Conduct AIS Management and Research *Work with Lake Champlain management partners to support and conduct AIS management and research in the Basin.*	****II.C.3.a: Reduce and contain AIS populations in the Basin.** Eliminate or prevent the expansion of AIS populations using control techniques such hand pulling, benthic barrier matting, suction harvesting, and pesticides.	Continued LCBP support for water chestnut management efforts in Lake Champlain and aquatic invasive species spread prevention grants to lake associations.	Reduced number of acres of water chestnut managed by mechanical harvester in Lake Champlain and the amount of AIS removed from Lake Champlain water bodies.
	****II.C.3.b: Research new control technologies and AIS impacts to the environment, economy, and human health.** Remain connected to new and innovative research and spread prevention programs capable of addressing AIS concerns in the Lake Champlain watershed. Connections will be made between existing AIS, new potential invasions, and the impacts of these invasions or potential invasions to the Lake Champlain Ecosystem, human health, and the regional economy.	This task area will address the landscape-level spread of AIS in the Basin using the boat launch steward data and by examining new research on species impacts and control technologies.	Examination of steward and other AIS-related databases and control technologies will inform management strategies and target certain access points or species.

Strategy	Task Area	Anticipated Output	Outcomes
Strategy II.C.4: Conduct AIS Public Outreach *Under this strategy, LCBP will work with Lake Champlain management partners to deliver education and outreach behavior change campaigns targeted at the general public and targeted water user groups (aquarium owners, boat owners, water gardeners, etc.).*	****II.C.4.a: Support programs that improve AIS spread prevention behaviors** Develop bilingual AIS spread prevention initiatives that address multiple pathways and promote the national Clean, Drain, and Dry Stop Aquatic Hitchhikers messaging program.	AIS educational brochures, videos, PSAs, and social media tools.	Increased awareness by stakeholder groups about AIS spread prevention issues and increase in spread prevention behavior among high-risk boating groups.

Partner watershed management plans related to this strategy:

- *USFWS Lake Champlain Fish and Wildlife Conservation Office; Lake Champlain Fish and Wildlife Management Cooperative - Sea Lamprey Control:* U.S. Fish and Wildlife Service collaborates with the New York State Department of Environmental Conservation and the Vermont Fish and Wildlife Department as part of the Lake Champlain Fish and Wildlife Management Cooperative to control sea lamprey in the Lake Champlain Basin. The sea lamprey is a parasitic fish that has affected the native lake trout and landlocked Atlantic salmon populations in Lake Champlain most severely while also depressing the populations of other species such as lake trout, walleye and the endangered lake sturgeon. Sea lamprey control is essential for restoration of Lake Champlain's fisheries. USFWS and partners follow a 5-Step adaptive management process to evaluate and manage sea lamprey in Lake Champlain.
  https://www.fws.gov/lcfwro/
  https://www.fws.gov/lcfwro/projects/lamprey.html
- *Lake Champlain Rapid Response Plan*: In May 2009, the Lake Champlain Steering Committee approved the Lake Champlain Basin Rapid Response Action Plan for Aquatic Invasive Species. This plan is intended to ensure that appropriate protocols, trained personnel, equipment, permits, and other resources are in place to contain and potentially eradicate newly detected nonnative aquatic invasive species as they are reported in the Basin. Task Force members from Québec, New York, and Vermont have been appointed to respond to and oversee rapid response actions.

THRIVING COMMUNITIES



GOAL: Communities have an appreciation of natural and cultural resources, and the capacity to implement actions that will result in sound stewardship of these resources while maintaining strong local economies.

Any measure of a sustainable society or sustainable watershed must include communities that are thriving, economically and culturally, in a way that is compatible with the protection of water quality and natural resources. Social and economic objectives are cornerstones of traditional definitions of sustainable development. While economic development is beyond the purview of the LCBP and this management plan, the organization can take steps to support and inform efforts by the business community and industry to implement lake-friendly practices that also can contribute to financial objectives in a variety of economic sectors.

An important first step in articulating the value of a clean lake to the regional economy is a comprehensive assessment of the value of both ecosystem services and the direct financial benefit to the business community, including revenues from recreation and tourism. Working with the business community, including producers such as farmers and loggers, to implement lake-friendly practices, from minor adjustments in everyday operations to large-scale innovation, can help enhance the ecological and economic services provided by clean water. For more than a decade, the LCBP has presented Farm Awards to agricultural producers who implement practices to protect water quality. Extending the awards program concept to other areas, including implementation of effective green stormwater infrastructure, can provide incentives for businesses to adopt more water-wise practices and exhibit leadership.

Often there is a need in communities to facilitate dialogue among community members, whether they are citizens, local municipal officials, or regulators at the state, provincial and federal levels. With the multiple political jurisdictions and partners working to improve water quality in the Basin, one of the LCBP's central roles is not only to coordinate the dispersal of resources and efforts, but also to facilitate this dialogue and broker the exchange of information and regulatory requirements. This often takes the form of facilitating public meetings and supporting the dissemination of technical knowledge through trainings and outreach events.

Much of the work to improve water quality and ecosystem integrity is accomplished by local entities, such as watershed groups, lake associations, municipalities, educational institutions, and other organizations that are embedded within the communities in which they work. Their employees and board members often live in the communities, and much of their work is supported and carried out by volunteers. For this reason, LCBP provides local implementation grants across technical and education and outreach programs that are critical in getting work done on the ground, and in engaging citizens in the protection of these resources. In addition to financial support, the LCBP aids these local organizations by providing training and access to technical resources through events, such as an annual meeting of Lake Champlain watershed groups and other collaborative efforts where community members have the opportunity to learn from each other.

The history of most of the communities within the Basin is inextricably tied to Lake Champlain and the tributaries that feed it. These interconnected waterways wholly defined the lifeways and character of these towns, villages, and hamlets. An understanding of this past and the historical objects and resources that represent our cultural heritage is critical in fostering an appreciation and valuation of them that leads to their stewardship. The Champlain Valley National Heritage Partnership (CVNHP) works on many fronts to protect and promote this cultural heritage, and as such the CVNHP Management Plan is integrated into *OFA* by reference.

The CVNHP's Management Plan outlines numerous programs to protect historical resources and interpret their significance for the public. These tasks address long-standing LCBP goals of fostering stronger personal connections between people and resources of the Lake Champlain Basin while supporting the local economy through recreational opportunities. Included in this management plan by reference to specific tasks in the CVNHP, the tasks support research that identifies significant historical and archaeological artifacts and resources, protect and preserve them for future generations, and explain how this past and the resources that represent it has shaped communities and their relationship with the Lake.

MEASURES OF SUCCESS

Assessing the outcomes or benefits of efforts to improve the health of communities in the context of societal changes is extraordinarily difficult. Some measures of a thriving community, such as economic vibrancy, are relatively easy

Community members learn to row and learn about the Chazy River in Champlain, NY.

to track. Metrics for progress are more difficult to define and measure for less tangible characteristics like a strong sense of place, community pride, or even environmental and social resiliency to flooding and climate change. The effects of assisting partners with meeting facilitation, public education efforts, and financial and technical support are indirect and often not immediate. Tangible on-the-ground environmental outcomes (phosphorus reductions, habitat improvement, etc.) of these initiatives are generally realized as a result of technical projects conducted subsequently by their participants. Long-term changes in citizens' knowledge of water quality issues and changes in behavior are best evaluated with both program-specific evaluations and long-term broad-scale surveys (see Goal IV: Informed and Involved Public). LCBP will work with partners to identify opportunities to evaluate the impact of our programs and determine the rate at which communities and networks within the Basin are adopting water quality improvement measures.

The Lake Champlain Steering Committee has identified a suite of priorities to reach the goal of thriving communities in the Lake Champlain watershed. LCBP will serve a role to meet each of these priorities:

- Management partners and members of the public (including the business community) become better informed about watershed issues and take actions to improve condition of the Lake.
  The LCBP will facilitate dialogue about resource stewardship and exchange of information between all members of communities within the Basin.
- Increased citizen understanding of LCBP and partner projects funded with public money that are implemented to clean up and protect the Lake.
  The LCBP will serve as facilitator and coordinator of research, management, and implementation activities that result in improvements to the condition of the Lake and watershed.

OBJECTIVES

Objective III.A
Engage and Support Community & Management Partners

Facilitate work and communication within and among local communities that further watershed protection and restoration efforts.

Strategy	Task Area	Outputs	Outcomes
III.A.1: Support local watershed groups	****III.A.1.a: Financial Resources** Provide funds for local watershed groups to implement projects	Award local implementation grants annually	Collectively, many of the task areas identified in this objective and the specific tasks supported as part of the annual budget process will achieve a long-term increase in the public's knowledge of watershed issues and changes in personal behavior. Members of the public who are informed about watershed issues are more likely to take and/or encourage stewardship actions that either improve the Lake or decrease impacts. Better understanding of LCBP's work and progress will also lead citizens to be more supportive of the projects undertaken with public money to clean up and protect the Lake.
	****III.A.1.b: Technical Resources** Provide technical assistance through meetings, workshops, and presentation	Conduct annual watershed organization meeting	
	III.A.1.c: Targeted watershed E&O projects Develop and implement local grants program to specifically support priority watersheds: Missisquoi, St. Albans Bay, South Lake A and B		

Strategy	Task Area	Outputs	Outcomes
III.A.2: Facilitate and coordinate public messaging with management partners	**III.A.2.a: Annual Meeting** Conduct annual meeting to share LCBP activities and accomplishments	Conduct meeting annually	
	****III.A.2.b: Meeting Facilitation** Assist partners with facilitating public meetings to inform the public about new legislation, programs, and initiatives.	Meetings conducted on an as-needed basis.	
	III.A.2.c: Technical Issue Training Support seminars, workshops, and conferences to deliver technical information on topics such as BMPS, LID, stormwater management technologies, roads management, etc. to municipal and state staff	Three programs delivered per *OFA* cycle.	
III.A.3: Enhance flood resilience and climate change adaptation in community planning and development	**III.A.3.a: Outreach** Support and advise municipalities' efforts to educate residents about sound river/floodplain management	Three workshops within *OFA* update cycle; advise/facilitate meetings on as-needed basis.	
III.A.4: Serve as a conduit for information, build professional capacity among stakeholders, and foster strong working relationships among the partners of the CVNHP.	****III.A.4.a: Support professional development among CVNHP stakeholders, including an annual heritage partnership conference.**	Host the annual CVNHP International Summit and forward professional development opportunities as they arise.	
	****III.A.4.b: Encourage cooperation and enhance communication among partners within the CVNHP.**	Provide annual funding to support the CVNHP regional stakeholder groups.	

Objective III.B

Support Water-Wise Economic Development

Support and inform business practices and economic development that promote clean water across multiple economic sectors.

Strategy	Task Area	Outputs	Outcomes
III.B.1: Support business innovations that improve water quality	**III.B.1.a: Business/ Industry Education Outreach** Work with key partners to develop industry-specific outreach initiative.	One initiative developed within *OFA* update cycle.	Collectively, many of the task areas identified in this objective and the specific tasks supported as part of the annual budget process will achieve a long-term increase in the public's knowledge of watershed and cultural heritage issues and changes in personal behavior. Members of the public who are nformed about watershed issues and the rich cultural heritage of the region are more likely to take and/or encourage stewardship actions that either improve the Lake or decrease impacts. Better understanding of LCBP's work and progress will also lead citizens to be more supportive of the projects undertaken with public money to clean up and protect the Lake and associated heritage and recreation resources.
	III.B.1.b: Innovation Development Provide support to local business to develop and showcase new and innovative practices that support clean water.	One initiative to fund new practice/technology in *OFA* update cycle.	
III.B.2: Assess value of clean water to regional economy	**III.B.2.a: Economic analysis** Conduct valuation of clean water and healthy watershed.	Assessment completed within *OFA* update cycle.	
III.B.3: Support working landscapes that help protect water quality	**III.B.3.a: BMP Implementation** Provide financial and technical assistance to support practices that help protect water quality.	One initiative implemented per *OFA* update cycle.	
	III.B.3.b: Outreach Assistance Support producers' efforts to promote their actions to protect water quality.	One outreach initiative in *OFA* update cycle.	
	****III.B.3.c: Awards Program** Continue and implement new programs that recognize effective practices to protect water quality.	Annual awards.	
III.B.4: Support implementation of green stormwater infrastructure (GSI)	**III.B.4.a: Awards/Recognition Program** Initiate a program that recognizes effective implementation of GSI.	Establishment of one program in *OFA* update cycle.	

Strategy	Task Area	Outputs	Outcomes
III.B.5: Coordinate efforts among partners to promote the CVNHP as a world-class destination for heritage travelers.	**III.B.5.a:** Develop and maintain a consistent regional brand related to the interpretive themes of the CVNHP.	Each year, focus on one of the three interpretive themes of the CVNHP.	
	III.B.5.b: Use the CVNHP website to promote the region.	Update and maintain the website as needed.	
	III.B.5.c: Support the development of bilingual materials, interpretation, and services.	Provide translation services as needed.	
III.B.6: Foster a sustainable relationship between people and the natural and cultural resources of the CVNHP	**III.B.6.a:** Promote energy efficiency and resource conservation among CVNHP partners.	Encourage carpooling and the use of teleconference calls.	
	III.B.6.b: Focus on land use changes and effects of stormwater runoff on water quality.	Provide free wayside exhibit design services for interpreting stormwater.	
	III.B.6.c: Promote sustainable agriculture practices in the CVNHP.	Produce and distribute a CVNHP agricultural/gardening guide.	

Objective III.C

Support Awareness and Conservation of Cultural Heritage Resources

Increase understanding of the region's cultural and historical resources. Greater understanding leads to greater appreciation, which leads to enhanced stewardship of these resources.

Strategy	Task Area	Outputs	Outcomes
III.C.1: ***Build on existing knowledge, make new discoveries of the history, culture, and special resources of the CVNHP, and make this information accessible to all***	****III.C.1.a:*** Provide support for needed historical and archeological research, and accelerate the identification, evaluation, protection, and interpretation of heritage resources, including ethnographies of the cultures within the CVNHP.	Provide five CVNHP grants annually to implement Strategy III.C.1	Tasks and outputs under this strategy will increase accessibility of CVNHP resources to stakeholders and community groups
	III.C.1.b: Manage a comprehensive online heritage resource database.	Staff and Regional Stakeholder Group coordinators will annually review and update the resource database	
III.C.2: ***Support the conservation of the historical, archeological, natural and cultural resources of the CVNHP***	**III.C.2.a:** Develop a voluntary stewardship program to strengthen non-regulatory protection of cultural and natural heritage resources.	Volunteer opportunities built with partner groups to raise awareness of cultural and natural heritage resources.	Tasks and outputs under this strategy will raise awareness of cultural and natural heritage resources throughout the CVNHP and will promote protection of these resources.
	III.C.2.b: Develop and implement CVNHP cultural and natural heritage resource protection programs.	Grant programs supporting protection of CVNHP heritage resources.	
	III.C.2.c: Develop and implement a management strategy for underwater cultural heritage (CH) resources in the CVNHP.	Convene an annual meeting among underwater cultural heritage resource stakeholders.	

Objective III.D

Support Lake and Basin Recreation

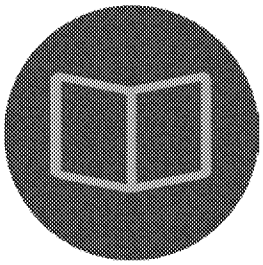
Foster stewardship of the Basin's land and waters, and support local economies, by connecting individuals and communities to the landscape.

Strategy	Task Area	Outputs	Outcomes
III.D.1: Provide sustainable and accessible recreational opportunities for everyone within the CVNHP	****III.D.1.a:** Support initiatives that promote sustainable recreational activities that feature the natural, cultural, and historical resources in the CVNHP.	Provide information on recreation opportunities on the CVNHP website.	Increased public access to waters in the Basin and the CVNHP for residents and visitors.
	III.D.1.b: Increase and improve public access opportunities to the waterbodies of the Basin and interconnected waterways of the CVNHP for diverse recreational activities.	Annually, fund one recreation project that supports sustainable and accessible recreation and interprets the resources featured.	
	****III.D.1.c:** Support a pubic information program that emphasizes recreational ethics, public safety, sustainable use, and stewardship of cultural and natural resources.	Include an AIS message on all water-based products developed through CVNHP funding.	

Partner watershed management plans related to this strategy:

- *USFWS, Lake Champlain Fish and Wildlife Conservation Office, Schoolyard Habitat Program*: The mission of the Schoolyard Habitat Program in the Lake Champlain Basin is to get students outside to experience nature. To accomplish this, biologists help schools create natural spaces on school grounds where students can observe, draw, write, think and question. Schoolyard Habitat projects provide habitat for local and migratory wildlife, including songbirds, small mammals, reptiles, amphibians, and insects. In many cases, these habitats also provide a vegetative buffer to nearby streams, lakes and wetlands, reducing pollution reaching these waterways. https://www.fws.gov/lcfwro/

INFORMED & INVOLVED PUBLIC

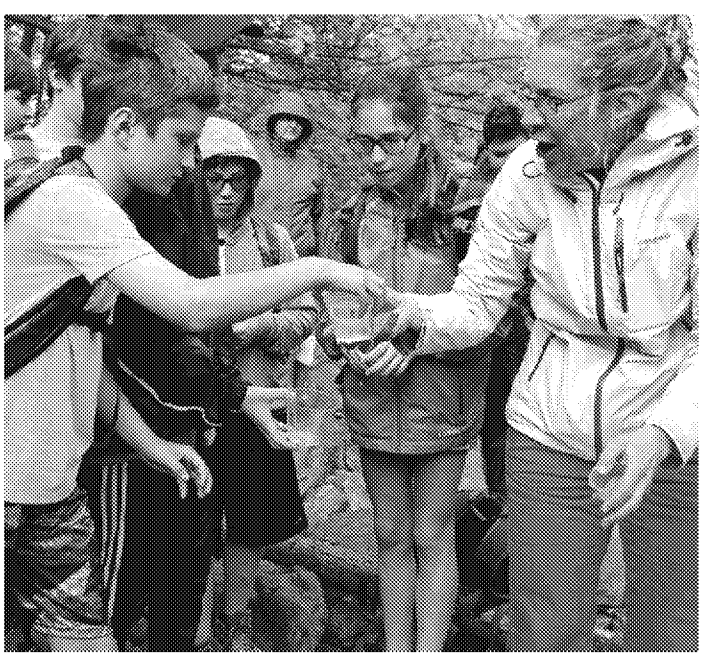


GOAL: Basin residents and visitors will understand and appreciate Lake Champlain Basin resources, and will possess a sense of personal responsibility that results in behavioral changes and actions to reduce pollution.

The future of the Lake Champlain Basin rests in the hands of its citizens and leaders. For this reason, public information and outreach efforts have been a core function of the LCBP's work since its establishment. Education and interpretation of both cultural and natural heritage have been a central component of the Champlain Valley National Heritage Partnership's work since its inception in 2006. The LCBP, the CVNHP, and its partners must continue and expand efforts to actively involve people in protecting and appreciating the resources of the entire Basin. Ultimately, a public that understands the Basin's water quality and resource management problems as well as possible solutions can make informed choices about protection and restoration. Informing the public about how to change personal and collective behaviors and providing opportunities to change those behaviors are critical steps in reducing our impact on Lake Champlain.

Developing this understanding and appreciation at an early age is critical in fostering stewardship of natural and cultural resources. Formal classroom learning in the classroom and field studies that are structured around a curriculum that integrates effective pedagogy and high quality watershed content will equip young citizens to make informed choices about their personal actions exploring the watershed. It will also create a multiplier effect as they share information and values with their parents, families, and other community members.

The LCBP and its partners work directly with students through classroom programs and providing first-hand stewardship opportunities, and by training and providing resources to K-12 educators. The Champlain Basin Education Initiative (CBEI), a consortium of environmental and place-based education groups, continues to be a leader in watershed education in the Lake Champlain Basin.



Students prepare to release juvenile salmon into Joiner Brook in Vermont's Winooski River watershed.

Through the *Watershed for Every Classroom* (WEC) program and annual professional development workshops, CBEI offers rich learning opportunities to teachers so that they might be better equipped to offer them to their students. CBEI has incorporated cultural heritage topics into WEC and its other programs, and will work to build this aspect of its offerings going forward.

In addition to formal education efforts, the LCBP will continue to build awareness among all age groups of watershed issues through informal and less structured outreach. Central to this objective is the need to interpret technical information and management efforts. The first step to connecting people to the resource and encouraging behavior change is making the science of lake issues understandable to all citizens.

A variety of techniques and forms of media—including face-to-face interpretation and development of exhibits and outreach materials in both print and electronic formats—help to achieve this objective. Mass media outlets such as television and radio can expand the reach of these messaging efforts to the 600,000 watershed residents. The effectiveness of these efforts is enhanced through collaboration with key partners who have similar communications goals and audiences, and who possess skill sets that complement LCBP capabilities.

The *State of the Lake and Ecosystem Indicators Report,* the LCBP's most prominent outreach piece, informs citizens about the Lake's condition and provides an update to policy makers and elected officials. The LCBP Resource Room at ECHO, Leahy Center for Lake Champlain in Burlington is also a significant element of outreach efforts. Staff at the Resource Room reach as many as 29,000 of ECHO's visitors (approximately 25% of total ECHO visitation) each year. Other key LCBP education and outreach efforts include the *Love the Lake Speaker Series,* WTPZ's *Champlain Connection,* Radio Vermont's "Get out on the Lake" PSA series, and the many fairs, festivals, and other public events where LCBP staff and partners interact with the public each year. Interpretation and partnership building are the CVNHP's greatest strengths. The program has developed more than 300 wayside exhibits that forge connections between the public and the region's natural and cultural resources.

The most successful education and outreach efforts inspire and facilitate citizen action. By making available information about lake-friendly products and practices, and by supporting the efforts of local watershed organizations, marine operators, and other partners to involve the public in direct action, the LCBP can help promote positive stewardship behaviors. New technologies allow citizens to share information and values more quickly and easily than ever before. Employing these tools in social marketing efforts can help engender a shift in collective values around resource stewardship.

Much of the work toward these objectives is accomplished most effectively by local watershed and river groups as well as other nonprofits and communities. As such, support for these organizations is critical to fully implementing this plan. Local implementation grants fund a variety of outreach projects and remain a high priority in the annual budget process.

MEASURES OF SUCCESS

Determining the outcomes of education and outreach efforts is significantly more challenging than it is for direct environmental management interventions such as phosphorus reduction projects or actions to prevent the spread of invasive species. The ultimate outcome of these efforts is behavior change. The on-the-ground impacts of specific projects that inform and involve the public are very difficult to determine, because once a program is delivered, the ability to follow up with participants or audiences is limited, particularly over the long term. While program-specific evaluations capture participants' perceptions and intentions for future behavior, lasting behavior change takes some time to occur. Evaluations of outreach efforts are helpful in comparing their effectiveness, but identifying desired environmental outcomes for specific outreach tasks is not the most efficient method of tracking progress. Most assessments of environmental behavior change performance measures point to surveys as being the most effective means to evaluating broad-scale, long-term behavior change.

Surveys that are consistently structured and administered at the beginning and end of the *OFA* implementation cycle will track and report on the environmental outcomes achieved by the outputs listed in the table below. The partnership approach that characterizes much of the LCBP's education and outreach work is essential in carrying out these programs, but it also poses an additional challenge in evaluating outcomes. Any surveys must be conducted in concert with the same partners who collaborate in delivering programs. A survey of this nature would be broad in scope, in terms of geographic extent, range of issues, and demographics targeted.

Long-term surveys will be complemented by evaluations of the specific programs listed as outputs. These evaluations help to gauge the effectiveness of these efforts, and allow comparisons of their relative merit that might then inform a strategic communications plan that lays out a road map for LCBP education and outreach efforts within the broader context of efforts conducted by partners, both with the LCBP and independently.

Effective surveys require strong funding support. Like all task areas in the plan, a survey of the public's understanding of the issues and behaviors that affect the watershed must be identified as a priority and supported as part of the annual budget process. Ideally this type of survey is conducted as part of a longitudinal study that looks at change over time. Annual budget tasks that fund surveys should take this into account, appropriating sufficient funds for long-term work.

The Lake Champlain Steering Committee has identified a suite of priorities to reach the goal of informing and involving the public within the Lake Champlain watershed. LCBP will serve a role to meet each of these priorities:

- Members of the public are better informed about watershed issues and are more likely to take stewardship actions that improve the condition of the Lake.
  The LCBP will work independently and in collaboration with management partners to deliver formal and informal education and interpretation programs, and to disseminate information in a variety of media, including print and electronic.
- With a better understanding of the work and progress toward improvement of the Lake, citizens will be more supportive of the projects undertaken with public money to clean up and protect the Lake.
  LCBP will publish the State of the Lake and Ecosystems Indicator Report every three years, and will report on its activities and those activities of partners conducted in collaboration with the LCBP through a variety of media, including an annual report of activities.

OBJECTIVES

Objective IV.A
Enhance formal learning at all educational levels

Provide Resources and opportunities for students to increase understanding of and appreciation for Basin resources, related threats, and priority actions needed to address them.

Strategy	Task Area	Outputs	Outcomes
IV.A.1: Implement Programs for K-12 students	****IV.A.1.a: School Programs** Deliver classroom instruction that increase knowledge of watershed science among K-12 students.	Programs in 10 schools each year.	Collectively, the task areas identified in this objective and the specific tasks supported as part of the annual budget process will achieve a long-term

Strategy	Task Area	Outputs	Outcomes
	IV.A.1.b: Field Programs Conduct field-based instruction and activities that provide hands-on knowledge of watershed science among K-12 students.	Programs with 3 schools or community partners each year	increase in the public's knowledge of watershed issues and changes in personal behavior. Members of the public who are informed about watershed issues are more likely to take and/or encourage stewardship actions that either improve the Lake or decrease impacts. Better understanding of LCBP's work and progress will also lead citizens to be more supportive of the projects undertaken with public money to clean up and protect the Lake.
IV.A.2: Maintain and expand Digital/Online Tools and Resources (WatershED Matters, Atlas)	**IV.A.2.a: Web Outreach** Redevelop web resources. Update design and content of existing web sites.	Conduct annual review and update of online education resources for relevant content and appropriate application of current technologies.	
	IV.A.2.b: Social Media Establish social media presence for education efforts.	Engagement of CBEI/WEC participant and alum on social media sites.	
IV.A.3: Provide professional development for teachers	****IV.A.3.a: Professional Development Trainings** Deliver instruction in watershed content and pedagogy for K-12 teachers via CBEI and other workshops.	WEC program offered on two-year cycle; two CBEI one-day workshops each year; 50 teachers reached annually, 5 instructional modules developed.	
	IV.A.3.b: Curriculum Development Disseminate resources and curriculum materials developed as part of CBEI workshops and WEC programs.	All resources and curriculum materials developed through CBEI programs are posted online.	
IV.A.4: Engage youth in stewardship opportunities	**IV.A.4.a: Community Service Projects** Community service projects focused on water quality and ecosystem integrity in K-12 school.	Implement community service projects in one school each year.	
	IV.A.4.b: Youth Volunteer Programs Recruit youth in volunteer initiatives to conduct watershed restoration projects.	One volunteer work day each year focused on youth.	

Strategy	Task Area	Outputs	Outcomes
	IV.A.4.c: Summer Youth Programs Deliver summer camp programs focused on hands-on water quality education and conservation practices.	Three camps/ 100 campers each year	
IV.A.5: Have a well-informed public that values the unique heritage of the CVNHP and understands the threats to those resources	****IV.A.5.a:** Connect, promote, and improve cultural and natural heritage sites through interpretation.	Provide five CVNHP interpretation grants annually.	
	****IV.A.5.b:** Support the use of interpretive themes to link resources within the CVNHP.	Focus funding on one of the CVNHP's interpretive themes each year.	
	IV.A.5.c: Promote cultural exchanges and international scholarship programs.	Include this topic at the Annual International Summit.	
	IV.A.5.d: Produce coordinated education programs for students.	Incorporate the CVNHP themes into the CBEI programming.	

Objective IV.B

Build awareness through informal learning of Lake Champlain Basin issues across all age groups.

Develop among residents and visitors an understanding of and appreciation for Basin resources, the related threats, and the priority actions needed to address them.

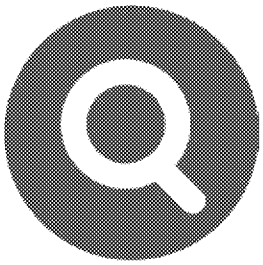
Strategy	Task Area	Outputs	Outcomes
IV.B.1: Interpret technical information for the public	****IV.B.1.a: Report on Condition of the Lake** State of the Lake and Ecosystem Indicators Report.	Publish report on three-year cycle	Collectively, the task areas identified in this objective and the specific tasks supported as part of the annual budget process will achieve a long-term increase in the public's knowledge of watershed issues and and changes in personal behavior. Members of the public who are informed about watershed issues are more likely to take and/or encourage stewardship actions that either improve the Lake or
	IV.B.1.b: Non-personal Interpretation Develop wayside and interpretive exhibits, brochures, fact sheets, and other print materials that explain watershed issues and concepts.	Develop and install interpretive materials at one site every two years	

Strategy	Task Area	Outputs	Outcomes
	IV.B.1.c: Personal Interpretation Deliver face-to-face, interactive interpretation with members of the public.	Reach 30,000 people each year through Resource Room interactions, and 6-10 field-based outreach opportunities;	decrease impacts. Better understanding of LCBP's work and progress will also lead citizens to be more supportive of the projects undertaken with public money to clean up and protect the Lake.
	IV.B.1.d: Public Presentations Deliver issue-specific presentations and demonstrations to foster public understanding and inspire action	20 presentations each year	
	IV.B.1.e: Web/Electronic Outreach Produce video and other dynamic media for LCBP websites	Publish Casin' the Basin e-news quarterly; sustained social media activity (10-15 posts per week).	
	IV.B.1.f: Print Publications Design and develop print materials to inform public of issues and progress made by stakeholders to address issues	Report of activities published annually; other materials developed on as-needed basis	

Objective IV.C
Facilitate changes in behavior and actions of citizens
Develop programs that enable people to adopt behavioral changes that reflect a personal commitment to protecting and improving resources in the Basin.

Strategy	Task Area	Outputs	Outcomes
IV.C.1: Promote hands-on citizen action	**IV.C.1.a: Web/Social Media outreach** Connect citizens with local organizations' volunteer programs	Volunteer opportunity of the month	Collectively, the task areas identified in this objective and the specific tasks supported as part of the annual budget process will achieve a long-term increase in the public's knowledge of watershed issues and changes in personal behavior. Members of the public who are informed about watershed issues are more likely to take and/or encourage stewardship actions that either improve the Lake or decrease impacts. Better understanding of LCBP's work and progress will also lead citizens to be more supportive of the projects undertaken with public money to clean up and protect the Lake.
IV.C.2: Promote lake-friendly products and practices	**IV.C.2.a: Outreach materials** Produce web content and print materials that describe lake-friendly products and practices.	Review web content annually for relevance; produce print materials as need/opportunities are identified	
IV.C.3: Promote engagement among and between citizens	**IV.C.3.a: Social Marketing** Implement social marketing techniques to foster sharing of information and stewardship ethic.	One social marketing initiative per OFA cycle.	
	****IV.C.3.b: Citizen Media Competition** Implement a photo/video contest with a content sharing mechanism.	One contest within OFA cycle	
IV.C.4: Assess changes in the public's knowledge and behavior	**IV.C.4.a: Public Survey** Conduct long-term surveys to track long-term changes in the public's knowledge and behavior, and effectiveness of LCBP E&O efforts	Surveys conducted at the beginning and end of OFA cycle.	

GLOSSARY & ABBREVIATIONS



GLOSSARY

A

Algae: small aquatic plants that occur as single cells, colonies or strands. Algae use carbon dioxide and nutrients such as nitrogen and phosphorus to make their own food through photosynthesis. Algae form the base of the aquatic food chain.

Algae bloom or algal bloom: a situation often caused by excess nutrients whereby algae grow and reproduce rapidly, often forming dense mats on the surface of the water. Algae blooms can cause unpleasant conditions for swimmers or boaters.

Aquatic: growing in, living in, or dependent upon water.

B

Basin: the surrounding land that drains into a water body. For Lake Champlain, the land that drains through the many rivers and their tributaries into the Lake itself.

Best management practice (BMP): a practice or activity that reduces the amount of pollution entering a body of water.

Biodiversity: the variety of plants and animals, their genetic variability, and their interrelationships and ecological processes, and the communities and landscapes in which they exist.

Biological indicator (bioindicators): biological characteristic at the cellular, organism, population, or community level that is representative of a given habitat or its ecological condition .

Biota: the animal or plant life of a region.

Blue-green algae/cyanobacteria: known as the most primitive group of algae. Some blue-green algae produce natural toxins.

Buffer (zone or strip): protective land border that reduces runoff and nonpoint source pollution loading to critical habitats or water bodies; area created or sustained to lessen the negative effects of land development on animals and plants and their habitats.

C

Community: in the context of ecology, a group of interacting plants and animals inhabiting a given area.

Concentration: the amount of a material dissolved in a solution.

Contaminant: a substance that is not naturally present in the environment or is present in amounts that can adversely affect the environment.

Contamination: in water resources, the impairment of water quality by waste to a degree that creates a hazard to public health or living resources through poisoning or the spread of disease. Air and soil can also be contaminated in a similar way.

Corridor: in the context of wildlife, a strip of habitat that joins two larger blocks of habitat that permits movement of wildlife during dispersal or migration, e.g., a wooded area along a river.

Cost-effective: in environmental policy-making, the least cost means of achieving a pre-determined environmental objective. Costs include long-term, short-term, direct and indirect costs to producers, society and the environment.

Cost-share: a method for sharing installation costs for conservation practices, including BMPs, between a governmental body (federal, state, local) and a farmer or landowner/land user.

Criteria: a standard, rule or test by which something can be judged; a measure of value.

Critical habitat: any area which has unique or fragile natural, historical, geological, archeological or wildlife value; areas which are essential to the conservation of an officially-listed endangered or threatened species and which may require special management considerations or protection are also considered critical habitats.

Cultural heritage: historical and archeological past reflected in existing culture.

Cultural heritage resources: the physical record and memory of the past.

D

Database: a collection of data arranged for ease and speed of retrieval.

Dioxin: any of a family of compounds known chemically as dibenzo-p-dioxins. Dioxins are sometimes generated by industrial processes, and can contaminate water and soil. Tests on laboratory animals indicate that it is one of the most toxic man-made chemicals known.

Drainage basin: land area from which water flows into a river or lake, either from streams, groundwater, or surface runoff (see Basin or Watershed).

E

Easement: an agreement by which a landowner gives up or sells one of the rights on his/her property. For example, a landowner may donate a right of way across his/her property to allow community members to access to the Lake.

Ecosystem: a group of plants and animals occurring together, and the physical environment with which they interact.

Ecosystem approach: a way of looking at socio-economic and environmental information based on the boundaries of ecosystems such as the Lake Champlain Basin, rather than based on town, city, county or other political boundaries.

Ecosystem-based approach: a management approach to making decisions based on the characteristics of the ecosystem in which a person or thing belongs. This concept takes into consideration interactions between the plants, animals and physical characteristics of the environment when making decisions about land use or living resource issues.

Endangered species: a species in immediate danger of becoming extinct.

Erosion: the loosening and subsequent transport of soil away from its native site, or the wearing away of the land surface by running water, wind, ice or gravity. Erosion often results from wind or the removal of vegetation.

Eutrophic: from Greek for "well-nourished," it describes a lake with low water clarity and excessive plant growth due to high concentrations of nutrients.

Eutrophication: the slow, natural process of aging of a lake, estuary, or bay. Dissolved nutrients enter the water body, often leading to excess plant growth and decreased water quality. As the plants die, they are decomposed by microorganisms which use up dissolved oxygen vital to other aquatic species such as fish. Over very long periods of time, the decaying plant matter builds up and causes the Lake to fill in to form a bog or marsh. Human-caused eutrophication can speed up this natural process.

F

Failing or faulty septic system: a septic system that releases untreated or inadequately treated wastewater to surface or groundwater by surfacing and overland flow of effluent or by subsurface percolation.

Fishery: the act, process, occupation or season for taking fish.

Fish passageway: a structure that is built, installed, or established to help fish bypass impediments in a waterway.

Food web: the pattern of food consumption in a natural ecosystem. A food web is composed of many interconnecting food chains.

G

Geographic Information Systems (GIS): a computer system that is used to compile, store, analyze and display geographic and associated data tables. This system can be used to produce maps which overlay information layers of locations of various environmental and physical features.

Guidelines: standards or principles by which to make a judgment or determine a policy or course of action.

H

Habitat: the place where a particular type of plant or animal lives. An organism's habitat must provide all of the basic requirements for life and should be free of harmful contaminants.

Habitat degradation: reduction of the quality of the environment in which an organism or biological population usually lives or grows.

Habitat restoration: the artificial manipulation of a habitat to restore it to its former condition.

Harmful algal bloom (HAB): Algal bloom that may create conditions that are harmful to human health or the ecosystem by production of natural toxins or other means.

Hazardous waste: any solid, liquid or gaseous substance that is a by-product of society and classified under state or federal law as potentially harmful to human health or the environment. Hazardous wastes are subject to special handling, shipping, storage and disposal requirements and possess at least one of the following four characteristics: ignitability, corrosivity, reactivity or toxicity.

Health risks: anything which may reduce human health. These may be ranked according to high, moderate and low risk.

I

Integrity: in the context of ecology, a structurally sound and fully functional ecosystem is one that is said to have "ecological integrity." Such an ecosystem is self-maintaining and resilient when disturbed.

Invertebrate: small organisms like worms and clams that do not have a backbone.

L

Load (also loading): the amount of a material entering a system from all sources over a given time interval.

Local watershed: in this Plan, any watershed within a sub-basin of Lake Champlain.

M

Manage: to control the movement or behavior of; to manipulate.

Management (natural resources management): to make a conscious, deliberate decision on a course of action to conserve, protect, restore, enhance, or control natural resources, or to take no action.

Mesotrophic: a moderately nutrient-enriched lake, between oligotrophic and eutrophic.

Mitigation: actions taken to compensate for the negative effects of a particular project. Wetland mitigation usually takes the form of restoration or enhancement of a previously damaged wetland or creation of a new wetland.

N

Non-native species: a species not present in the Lake Champlain Basin before European settlement.

Nonpoint source pollution: nutrients or toxic substances that enter water from dispersed and uncontrolled sites, rather than through pipes. Sources of nonpoint source pollution include runoff from agricultural lands, urban and forest land, and on-site sewage disposal.

Nuisance species: species having adverse ecological or economic impacts, or impede the use of Lake Champlain. May include native and non-native species.

Nutrient: a substance like phosphorus or nitrogen which nourish life. These are essential chemicals needed by plants or animals for growth. If other physical and chemical conditions are appropriate, excessive amounts of nutrients can lead to degradation of water quality by promoting excessive growth, accumulation

and subsequent decay of plants, especially algae. Some nutrients can be toxic to plants and animals at high concentrations.

Nutrient management: an integrated approach designed to maximize the efficient use of nutrients, particularly phosphorus which is found in animal manure and fertilizer.

O

Oligotrophic: from the Greek for "poorly nourished"; describes a lake, with low plant growth and high clarity. Oligotrophic lakes contain little organic matter and have a high dissolved oxygen level.

P

Pathogens: organisms, usually viruses, bacteria or fungi, capable of causing disease.

PCBs: polychlorinated biphenyls. A group of manufactured chemicals, including about seventy different but closely related compounds made up of carbon, hydrogen and chlorine, used in transformers and capacitors for insulating purposes. If released to the environment, PCBs do not break down for long periods and can biomagnify in food chains. PCBs are suspected of causing cancer in humans and other animals. PCBs are an example of an organic toxic chemical.

Perennial crop: An agricultural commodity that is produced from the same root structure for two or more years.

Phytoplankton: very small, free-floating plants found in water bodies.

Point source pollution: nutrients or toxic substances that enter a water body from a specific entry point, such as a pipe. For example, the discharge from a sewage treatment plant is point source pollution.

Pollutant: a substance that causes pollution.

Pollution: impairment of land, air or water quality caused by agricultural, domestic or industrial waste that negatively impacts beneficial uses of the land, air or water, or the facilities that serve such beneficial uses.

Pollution prevention: any action such as the efficient use of raw materials, energy, and water that reduces or eliminates the creation of pollutants. In the Pollution Prevention Act, pollution prevention is defined as source reduction (see Source reduction).

Population: the number of inhabitants in a country or region; in ecology, a population is a group of organisms of the same species living in a specified area and interbreeding.

Protection: Preservation of a parcel of land to reduce impacts of development or other human-based land uses or to prevent the degradation of water quality, a species, or habitat.

R

Rare species: a species not presently in danger, but of concern because of low numbers.

Restoration: any action taken to repair, maintain, protect, and enhance the ecological integrity of the Basin.

Riparian (habitat or zone): habitat occurring along rivers, streams and creeks that provides for a high density, diversity and productivity of plant and animal species.

Runoff: water from rain, melted snow, or agricultural or landscape irrigation that flows over the land surface into a water body.

S

Salmonid: a member of the family Salmonidae, which includes salmon, trout and whitefishes.

Sedimentation: the deposition or accumulation of sediment, such as sand, silt or clay.

Source reduction: any practice which reduces the amount of any hazardous substance, pollutant or contaminant entering wastewater. Source reduction decreases the hazards to public health and the environment associated with the release of such substances, pollutants or contaminants. Technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training or inventory control are all examples of source reduction.

Stewardship: the concepts of responsible caretaking; based on the premise that we do not own resources, but are managers of resources and are responsible to future generations for their condition.

Stormwater runoff: precipitation running off of saturated or frozen soils and impervious surfaces such as paved parking lots, streets or roofs.

Sub-basin: a smaller drainage area within a large drainage basin, such as the Saranac River sub-basin of the Lake Champlain Basin. In this Plan, "sub-basin" refers to one of the 34 drainage areas (larger than 26 km2) to Lake Champlain.

T

Threatened species: a species with high possibility of becoming endangered in the near future (see Endangered species).

Total Maximum Daily Load: a TMDL is the maximum amount (load) of a single pollutant from all contributing point and nonpoint sources that a water body can receive and still meet water quality standards, and an allocation of that amount of the pollutant's sources.

Toxic substance: any substance which upon exposure, ingestion, inhalation or assimilation into any organism, causes death, disease, genetic mutations, physiological malfunctions or physical deformation. Examples of toxic substances are cyanides, phenols, pesticides and heavy metals.

Toxic: poisonous, carcinogenic, or otherwise directly harmful to life.

Tributary: a stream or river that flows into a larger stream or river or lake.

U

Urban runoff: storm water from city streets and adjacent domestic or commercial properties that may carry pollutants of various kinds into the sewer systems and/or receiving waters.

W

Watershed: the geographic reach within which water drains into a particular river, stream or body of water. A watershed includes both the land and the body of water into which the land drains.

Watershed group: a citizen based group interested in protecting a nearby waterway and its surrounding drainage area.

Watershed planning: cooperative local and regional land use planning that recognizes watershed boundaries rather than political boundaries and considers water resources management is the central planning objective.

Wetland restoration: any action that aids in preserving, repairing, maintaining or enhancing wetlands (see Wetlands).

Wetlands: lands that are transitional between land and water where the water table is usually at or near the surface of the land. Wetlands are characterized by unique hydric soils and contain plant and animal communities adapted to aquatic or intermittently wet conditions. Swamps, bogs, wet meadows and marshes are examples of wetlands. The boundary of Lake Champlain wetlands has been defined at 105 feet (31.1 meters) above mean sea level.

Wildlife: for the purposes of this Plan, the term "wildlife" includes any non-domesticated mammal, fish, bird, amphibian, reptile, mollusk, crustacean, arthropod and other invertebrate or plant.

Z

Zooplankton: very small, free-floating animals found in water bodies.

ABBREVIATIONS

AIS Aquatic Invasive Species
ANS Aquatic Nuisance Species
BGA Blue-Green Algae
BMP Best Management Practice
CAC Citizens Advisory Committee
CBEI Champlain Basin Education Initiative
CVNHP Champlain Valley National Heritage Partnership
DPW Department of Public Works
E&O Education and Outreach
EPF Environmental Protection Fund
EPSCoR Experimental Program to Stimulate Competitive Research
GLFC Great Lakes Fishery Commission
GSI Green Stormwater Infrastructure
HAB Harmful Algal Bloom
HAPAC Heritage Area Partnership Advisory Committee
IJC International Joint Commission
LiDAR Light Detection and Ranging
LCBP Lake Champlain Basin Program
LID Low Impact Development
LTP Land Treatment Plan
MRC Regional Municipalities/Municipalité Régionale de Comté
NEANS Northeast Aquatic Nuisance Species
NEIWPCC New England Interstate Water Pollution Control Commission
NMP Nutrient Management Plan
NPS National Park Service
NRCS Natural Resources Conservation Service
NYS New York State
NYSDEC New York State Department of Environmental Conservation
OFA *Opportunities for Action*
PCBs Polychlorinated Biphenyls
PSA Public Service Announcement
QC Québec
QC MDDELCC Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques du Québec /Ministry of Sustainable Development, Environment and the Fight against climate change of Québec
RAP Required Agricultural Practices
RFP Request for Proposals
SUNY State University of New York
TAC Technical Advisory Committee
TMDL Total Maximum Daily Load
USACE United States Army Corps of Engineers
USDA-NRCS United States Department of Agriculture – Natural Resources Conservation Service
USEPA United States Environmental Protection Agency
USFWS United States Fish and Wildlife Service
UVM University of Vermont
VT Vermont
VTANR Vermont Agency of Natural Resources
VTDEC Vermont Department of Environmental Conservation
WEC Watershed for Every Classroom

APPENDICES

Lake Champlain Basin Program Guiding Principles for Program Management

Approved: June 16, 2017

These guiding principles are intended to provide a framework for the proper and effective management of the Lake Champlain Basin Program (LCBP) and the Champlain Valley National Heritage Partnership (CVNHP). This document includes provisions relating to creation and development of the Program. In addition, this document addresses the roles and responsibilities of the Steering Committee and its Executive Committee, as well as several standing advisory committees, including the Technical, Education & Outreach, Heritage Area Program, and Citizen Advisory Committees. This document also outlines the roles of the Host Entity, the Program Director, and the staff of the Lake Champlain Basin Program and the Champlain Valley National Heritage Partnership. These guiding principles shall be adopted and periodically revised by the Steering Committee as needed and shall be reexamined in 2022 and every five years thereafter, unless deemed appropriate earlier. For purposes of this document, the Host Entity is the New England Interstate Water Pollution Control Commission (NEIWPCC).

Table of Contents

Creation of the Lake Champlain Basin Program

On November 5, 1990, the ***Lake Champlain Special Designation Act*** was signed into law under Section 120 of the Clean Water Act. Sponsored by Senators Leahy and Jeffords from Vermont and Senators Moynihan and D'Amato from New York, this legislation designated Lake Champlain as a resource of national significance. The legislation authorized the assembly of the Lake Champlain Management Conference, a group organized and chaired by U.S. EPA Region I, and made up of federal, state, and local designees with expertise in various technical and policy areas. The goal was to bring together people with diverse interests in the Lake and to create a comprehensive plan for protecting the future of Lake Champlain and its surrounding watershed. The Act specifically required examination of water quality, fisheries, wildlife, recreational, and economic issues. The challenge has been both to identify particular problems requiring management action and to chart an integrated plan for the future of the Lake Champlain Basin. To address this challenge, the Special Designation Act established the Lake Champlain Basin Program and authorized funding support from the EPA to the States of Vermont and New York and the New England Interstate Water Pollution Control Commission (NEIWPCC) to implement that Lake Champlain Basin Program (LCBP).

The Lake Champlain Management Conference undertook a five-year program of resource evaluation and management plan development, culminating in the 1996 comprehensive management plan Opportunities for Action (OFA). The Lake Champlain Management Conference decided to assign oversight of the implementation work of the LCBP to the Lake Champlain Steering Committee, and identified the membership of the new Committee in the 1996 management plan.

Funding and Oversight of the LCBP

The Lake Champlain Steering Committee is comprised of a broad spectrum of representatives of government agencies with a stake in the basin and the non-governmental chairs of advisory groups representing citizen Lake users, scientists, and educators. The Lake Champlain Special Designation Act was reauthorized in 2002, with the ***Daniel Patrick Moynihan Lake Champlain Basin Program Act*** authorizing expenditures of up to $11 million in EPA funds per year to accomplish this goal [www.lcbp.org/PDFs/H.R.1070_LCBPAuthorization_2002.pdf]. Recent annual appropriations have averaged a little over $4 million, which support numerous LCBP programs and Lake Champlain Steering Committee priorities each fiscal year. In addition, the LCBP receives annual appropriations via the Great Lakes Fishery Commission (GLFC) and the National Park Service (NPS).

The Great Lakes Fishery Commission was established by the 1954 Convention on Great Lakes Fisheries to encourage cross-border collaborative management efforts to restore the fisheries of the Great Lakes, particularly for management of sea lamprey. The recognition of sea lamprey as a nuisance species in Lake Champlain opened an avenue for funding through the GLFC to support fisheries and water quality restoration work in Lake Champlain. The GLFC, the LCBP, and the U.S. Fish & Wildlife Service (USFWS) entered into a Memorandum of Understanding (MOU) on Native Species and Habitat Restoration and Water Quality Improvements in 2010. Approximately $3 million is currently appropriated via the GLFC toward Lake Champlain work annually, a reflection of Senator Leahy's commitment to improving the Lake Champlain ecosystem. Roughly one-third of this appropriation is available to LCBP to support watershed restoration work in Lake Champlain, with the balance directed toward sea lamprey management, fisheries research, and other habitat restoration work conducted by the US Fish and Wildlife Service and fisheries research at the University of Vermont.

The Champlain Valley National Heritage Partnership (CVNHP) was established in 2006 as a part of the National Heritage Area (NHA) programs to recognize the importance of the historical, cultural, and recreational resources of the region and to assist efforts to preserve, protect, and interpret those resources. The Lake Champlain Basin Program (LCBP) is the managing entity of the CVNHP. The LCBP coordinates its work with its official liaison to the National Park Service (NPS), the Marsh-Billings-Rockefeller National Historical Park (MBRNHP) located in Woodstock, Vermont. The purpose of the NHA also is to enhance the quality of the tourism economy and to encourage working partnerships among state, provincial, and local governments and non-profit organizations in New York, Québec, and Vermont. As a NHA with an approved management plan, the Champlain Valley National Heritage Partnership (CVNHP) is authorized to receive up to $1 million annually, and is typically appropriated $300,000 from the National Park Service (NPS). The funds are allocated annually from the U.S. Department of Interior budget, which is determined by the U.S. Congress.

During the past two decades, the LCBP has sponsored a great variety of research, monitoring, and grants to regional organizations to promote water quality programs and install projects to improve water quality. LCBP has provided more than $7 million to support over 1,000 small grants awarded to more than 600 local recipients to reduce pollution in the Lake, educate and involve the public, and gather and share information about Lake issues. The LCBP also has funded education, planning, demonstration, control, research, and monitoring projects to restore and protect water quality and the diverse natural and cultural resources of the Lake Champlain Basin.

As a partnership of provincial, state, interstate, and US federal agencies, the Lake Champlain Basin Program (LCBP) brings cross-boundary and multidisciplinary leadership experience to coordinating and implementing the plan. The LCBP works cooperatively with many partners to protect and enhance the environmental integrity and the social, cultural, and economic benefits of the Lake Champlain Basin. Lake Champlain Steering Committee membership from New York, Québec, and Vermont reflects each jurisdiction's commitment to the 2015 *Memorandum of Understanding on Environmental Cooperation on the Management of Lake Champlain among The State of New York, The State of Vermont and the Government of Québec*. It is this MOU that also describes the role, goals, and eligible membership of the Lake Champlain Steering Committee. US federal agency participation in the Lake Champlain Steering Committee, as described in the 2015 MOU, reflects the federal commitments established in the *Special Designation Act of 1990* and the *Daniel Patrick Moynihan Lake Champlain Basin Program Act of 2002,* which have enabled substantial US federal funds to be appropriated to support the work of the LCBP. These funds are made available to the LCBP to support operations and tasks that are consistent with the federal authorizations.

In 1996, the Lake Champlain Basin Program adopted the first *Opportunities for Action: An evolving plan for the Lake Champlain basin*. The plan was the result of six years of work by more than 100 partners representing US federal, New York and Vermont state government, Quebec provincial government, local municipalities, academic institutions, and numerous watershed organizations. OFA has subsequently been updated in 2003, 2010, and in 2017. The 2017 update of OFA reflects four core goals: clean water, healthy ecosystems, thriving communities, and an informed and involved public.

In 1992, the Lake Champlain Management Conference selected the New England Interstate Water Pollution Control Commission (NEIWPCC) to host the newly formed LCBP. See Section 6, The Host Entity for more. The role of NEIWPCC was further codified in the Great Lakes and Lake Champlain Act of 2002 (Clean Water Act §120), in which NEIWPCC was named alongside the States of Vermont and New York as an entity authorized to receive support from the U.S. EPA to implement the LCBP.

Mission and Vision of the Lake Champlain Basin Program

The mission of the LCBP is to coordinate and support efforts that benefit the Lake Champlain Basin's water quality, fisheries, wetlands, wildlife, recreation, and cultural resources by working in partnership with government agencies from New York, Vermont, and Québec, private organizations, local communities, and individual stakeholders.

These efforts are guided by OFA. The Lake Champlain Steering Committee and LCBP staff work with program partners, advisory committees, and local communities to implement this plan through a variety of federal, state, and local funds.

The Lake Champlain Steering Committee has identified key functions that must be accomplished to successfully implement the plan. These functions include the following:

COORDINATE PROGRAMS AND IMPLEMENTATION ACTIVITIES

Coordination among government agencies, regional and local governments, the public and private sectors, nonprofit organizations, residents, and visitors is critical to successful implementation of the plan. Coordination involves facilitating data management and information exchange, resource and data sharing, and improving efficiency among key partners while not duplicating programs or creating new layers of bureaucracy.

INFORM AND INVOLVE THE PUBLIC

Public information and involvement efforts are required for successful implementation of the plan. A public that understands the Basin's water quality and resource management issues can make informed choices about the long-term protection and restoration of the Lake. A commitment to lifelong education about Basin resources is needed to facilitate this process. Furthermore, involving the public in planning and implementation increases both the sphere of responsibility for action and support for recommended actions.

SUPPORT LOCAL LEVEL IMPLEMENTATION

Implementation at the local level is the cornerstone of successful plan implementation. Addressing pollution problems at the local level is important because those most affected by an issue are often best able to address that issue. Many communities have existing resources and organizations to help implement programs, but may lack technical expertise, adequate funding, or access to additional human and financial resources. Building local capacity for plan implementation requires strengthening technical assistance to community groups and may require additional financial support for local programs.

MEASURE AND MONITOR SUCCESS RELATIVE TO PLAN BENCHMARKS

A critical component of watershed planning is monitoring, which must accomplish two roles. First, it must be a source of information regarding the health of the Lake and Basin. Management capacity hinges on the availability and reliability of comprehensive monitoring of key ecosystem indicators. Second, monitoring must measure the success of management programs and ensure accountability to the public. Monitoring can help determine progress toward goals and whether or not priorities need to be adjusted.

CREATE LINKS WITH LEGISLATIVE BODIES

Successful plan implementation depends greatly on the ability to gain political support for recommended actions. A framework is needed to communicate needs and recommend actions concerning the Lake to legislative bodies who formulate federal, state, and local laws and appropriate funds to various programs.

CREATE LINKS WITH INTEREST GROUPS

Implementation of the recommended actions in the plan depends greatly on continued support from numerous individuals and groups. Decisions concerning the management of the resources in the Lake Champlain Basin should be made through a consensus-based, collaborative process that encourages the expression and understanding of diverse viewpoints. This process helps integrate economic and environmental goals into plan implementation and ensures that a focus on implementation at the local level is maintained.

CONDUCT RESEARCH

The plan identifies several areas in which research is needed. Research has been an important component of preparing and updating the plan and will continue to provide critical information as implementation evolves. Improved knowledge of the physical, chemical, biological, and social characteristics of the Lake and Basin will help resource managers make effective policy and management decisions in the future.

SECURE AND DIRECT FUNDING

The cost of implementing the plan is high, though not as high as the potential costs of failing to act. The ability to implement watershed programs rests heavily on the availability of and access to funding sources. A mechanism must be in place to seek public and private funding for program implementation as appropriate and to allocate resources to appropriate entities based upon recommended priorities. Refer to Strategies for Funding Implementation for a discussion of funding implementation efforts.

UPDATE PLAN RECOMMENDATIONS

Because environmental conditions in the Basin change over time and new technologies will be discovered, priorities for action in the plan may change. Some management programs may become more important, others less. The plan should be reviewed and updated periodically to reflect these changing conditions. Moreover, the Steering Committee periodically should identify new actions requiring implementation based on reports of emerging issues from advisory committees and the LCBP's adaptive management initiative.

ADVISE AND ENCOURAGE AGENCIES RESPONSIBLE FOR IMPLEMENTATION

As the plan evolves, various agencies will fulfill their responsibilities for implementing certain actions. Listed benchmarks provide gauges for monitoring success. Those

responsible for implementing actions must be encouraged to follow through with their commitments and reach these benchmarks. Regular reporting of accomplishments, presented with the plan on the LCBP website plan.lcbp.org will both document and communicate progress as it is achieved.

LCBP Operating Structure, Committees, Host Entity, and Staffing

Background

The US Environmental Protection Agency (USEPA), Great Lakes Fishery Commission (GLFC), and National Park Service (NPS) regularly enter into grant agreements with the New England Interstate Water Pollution Control Commission (NEIWPCC), Vermont, and New York on behalf of the LCBP to implement tasks according to a single coordinated LCBP workplan approved by the Lake Champlain Steering Committee. Most tasks are implemented by LCBP staff who, as NEIWPCC employees, provide management and continuity through annual budget cycles and who coordinate the advisory committees and procedures involved in annual operations.

The Lake Champlain Steering Committee is responsible for approving all workplans supported with LCBP funds. Both States maintain Lake Champlain Coordinators, with LCBP funding, who ensure that implementation managed by the states reflects the intentions of the Lake Champlain Steering Committee. Other work in the U.S. sector of the watershed is funded by federal appropriations to other federally funded agencies and commissions. EPA, GLFC, and NPS annual appropriations reflect both the executive branch priority as a line in the President's budget and the Congressional commitment, through substantial and continuing Congressional support.

Work in the Canadian sector of the basin is funded by provincial appropriations in the Canadian Province of Québec. Led by the Québec Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (Ministry of Sustainable Development, Environment and the Fight against Climate Change), the highest priorities of *OFA* are reflected in annual provincial ministry action plans.

Many essential research, monitoring, and resource management endeavors are developed with common methodologies on each side of the border so that data may be shared, analyzed, and reported easily. The successful experience of one jurisdiction is regularly shared with neighboring jurisdictions, and replication often is successful. Cross-marketing of programs, initiatives, and events and collaborative planning efforts are characteristic of the working relationships maintained by Steering Committee members. See Figure A1 for an outline of the LCBP Operating Structure.

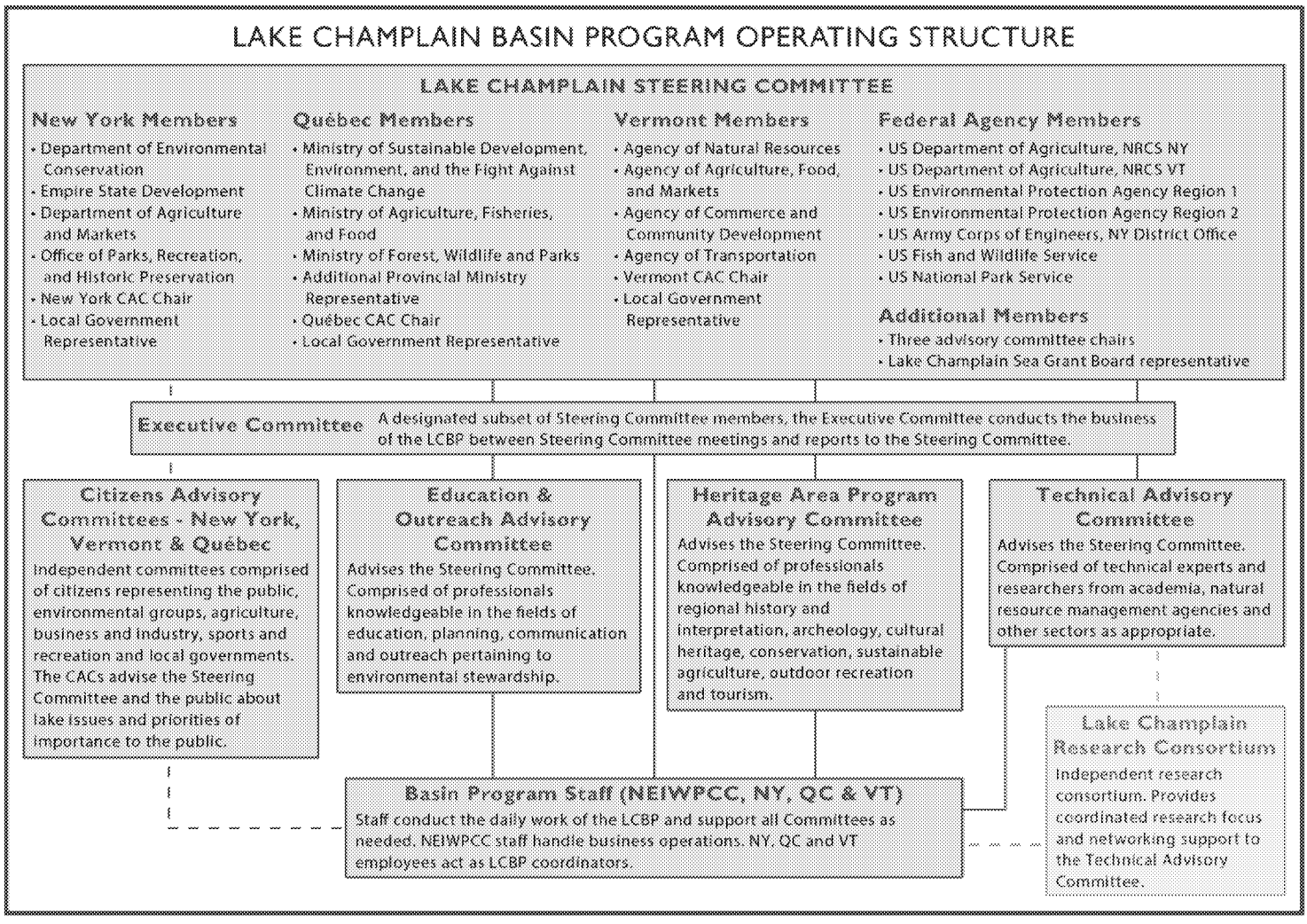


Figure A1. LCBP Operating Structure.

Lake Champlain Steering Committee

As affirmed through the *Memorandum of Understanding* signed by the Governors of New York and Vermont and the Premier of Québec in 2015, the Lake Champlain Steering Committee will continue its present role as a participatory forum in which key state, provincial, U.S. federal, and local leaders from New York, Québec, and Vermont can discuss issues of Lake Champlain and its watershed and coordinate policies and programs. As further codified by the *Daniel Patrick Moynihan Lake Champlain Basin Program Act of 2002* (U.S. Public Law 107-303), the LCBP is identified and authorized as the coordinated effort to implement *OFA*, with U.S. federal government participation and with federal funds.

Steering Committee Composition

The Steering Committee has been established to represent the wide range of state, local, federal and cross-jurisdictional interests and available resources in the basin to carry out OFA. Each (state and provincial) jurisdiction has identified its chief environmental delegate,

who hosts and chairs Steering Committee meetings in rotation; this pattern contributes to cross-boundary coordination and teamwork. The states of New York and Vermont and the province of Québec maintain the following (twenty-nine) partners on the Steering Committee to ensure a diversity of informed partners in the leadership of the LCBP.

Voting membership of the Lake Champlain Steering Committee includes:

- **Four New York State** agency representatives appointed by the governor: New York should consider the Department of Environmental Conservation (NYSDEC), Empire State Development (ESD), the Department of Agriculture and Markets (NYSDAM), and the Office of Parks, Recreation, and Historic Preservation (NYSOPRHP).

- **Four Vermont State** agency representatives appointed by the Governor: Vermont should consider the Agency of Natural Resources (VTANR), the Agency of Agriculture, Food, and Markets (VTAAFM), the Agency of Commerce and Community Development (VTACCD), and the Agency of Transportation (VTRANS).

- **Four Québec Provincial** representatives appointed by the Premier: Québec should consider three provincial representatives from the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (Ministry of Sustainable Development, Environment and the Fight against climate change), Ministère Agriculture, Pêcheries et Alimentation du Québec (MAPAQ, Ministry of Agriculture, Fisheries, and Food of Québec), and Ministère des Forêts, de la Faune et des Parcs (QC MFFP, Ministry of Forest, Wildlife and Parks of Québec), and a fourth representative from provincial ministry leadership.

- **Three Local Government** representatives from municipalities in New York, Québec, and Vermont will ensure that Steering Committee decisions are well informed regarding local community interests. Local governments and the Steering Committee may nominate representatives and the corresponding governor or premier is encouraged to make a corresponding appointment.

- **Three Citizen Advisory Committee** chairs are Steering Committee members, one each from New York, Québec, and Vermont.

- **Three Advisory Committee** chairs, from the Technical Advisory Committee (TAC), Education and Outreach Advisory Committee (E&O), and Heritage Area Partnership Advisory Committee (HAPAC), are Steering Committee members.

- **One Lake Champlain Sea Grant** representative may serve as a member of the Steering Committee.

- **Seven US Federal Agency** representatives serve on the Steering Committee. Represented in these positions are:

- the US Department of Agriculture Natural Resources Conservation Service, New York State Conservationist;
- the US Department of Agriculture Natural Resources Conservation Service, Vermont State Conservationist;
- the US Environmental Protection Agency Region 1;
- the US Environmental Protection Agency Region 2;
- the US Army Corps of Engineers, New York District Office;
- the US Department of the Interior – Fish and Wildlife Service; and
- the US Department of the Interior – National Park Service.

Members of the New York and Vermont congressional delegation staff are Steering Committee members who serve a non-voting liaison role.

Changes to the Steering Committee Composition

The Lake Champlain Steering Committee may appoint new organizations to full membership in the Committee. Any changes to the composition of the Steering Committee shall be documented in the next subsequent revision of *Opportunities for Action*. The LCBP encourages participation from any organization regardless of formal voting membership on the Steering Committee. Eligible organizations to the Steering Committee are established by the most recent Memorandum of Understanding on Environmental Cooperation on the Management of Lake Champlain between New York, Québec, and Vermont. The following procedure outlines the process for appointing new organizations to the Steering Committee:

Any interested, eligible organization (eligibility is determined in the most recent VT/NY/QC MOU) must submit a letter of interest to the LCBP/CVNHP Director. The letter should:

- state the mission of the organization and how this mission relates to the mission of the Lake Champlain Steering Committee and the LCBP/CVNHP.
- describe how the organization's membership on the Steering Committee would further the mission of the LCBP and its priorities identified in OFA.
- clearly document what resources the group can bring to the Steering Committee in the form of direct funding support for Lake Champlain projects and programs that support *Opportunities for Action*.
- demonstrate how their interests are not represented by the current membership of the Steering Committee and how a voting membership by the new organization would change representation of these interests.
- clearly identify the person or position (e.g. Director or Program Manager) within the organization who would be formally representing the organization on the Steering Committee.

The LCBP/CVNHP Director will discuss the letter with the interested organization, reviewing the mission of the LCBP/CVNHP, the role and charge of the Steering Committee, and any other relevant information at that time.

The LCBP/CVNHP Director will then circulate the letter of interest to the Lake Champlain Steering Committee, and will confer with the Chair of the Executive Committee and the three Chairs of the Steering Committee (New York, Québec, and Vermont MOU designees) to review and discuss the letter of interest during the next convenient Executive Committee agenda. The Chair of the Executive Committee may request that a representative of the interested organization attend the meeting to respond to questions. The Executive Committee may elect to discuss the letter in Executive Session, according to the open meeting laws established for the jurisdiction in which the meeting is occurring. The Executive Committee will discuss the merits of the requested membership and may then choose whether to nominate the interested organization for appointment to the Steering Committee by simple majority vote.

If the interested party is nominated for appointment to the Steering Committee, a representative(s) from the party will attend the next convenient Steering Committee meeting to inform the Committee about their organization, reason(s) for interest in joining the Committee, and resources their party can contribute to the group. The Steering Committee may then choose to appoint the organization to the Committee following the same procedures described for the Executive Committee nomination process. If the Committee agrees to add the interested organization to the membership, an appropriate representative(s) of the organization will be added to all appropriate distribution lists at that time and informed of upcoming meeting schedules and other obligations of membership to the Steering Committee.

Committee Operating Protocols

a) Steering Committee meetings are chaired by the member from the environmental agency of the jurisdiction hosting the meeting, QCMDDELCC, NYSDEC, or VTANR.
b) All committees operate under the basic principles outlined in Robert's Rules of Order.
c) The Steering Committee conducts all meetings in compliance with the open meeting laws of the host jurisdiction (State or Province) while
    a. keeping meetings open and accessible to the public unless obligated to meet in executive session;
    b. meeting in executive session only when considering confidential matters limited to:
        - review of competitive bids and awards,
        - personnel discussions related to appointment to or removal from a LCBP committee,
        - discussions related to nomination of new members to the Steering Committee and Advisory Committees.
        - LCBP human resource matters,
        - matters that would, in any of the three jurisdictions, be required by law to be maintained in confidence.
    c. taking no formal actions while in executive session.

d. All formal actions or decisions by the Steering Committee and all other LCBP committees will be based on simple majority vote by the members participating in the meeting.

d) On a meeting-by-meeting basis, any Steering Committee member may, by written communication to the LCBP Director in advance of the meeting, designate another individual to participate in his or her stead at a Steering Committee meeting with proxy voting rights. Written proxy authorizations are maintained in the files of the LCBP.
e) No votes *in absentia* are permitted; members participating in real-time through conference call or other electronic or internet media sharing are considered present.
f) Steering Committee meeting draft agendas will be shared with all members, interested media, and members of the public at least one week prior to a regularly scheduled meeting.
g) Meeting minutes will be posted on the LCBP website within approximately one week of approval.
h) Committee members will be asked to review the *LCBP Conflict of Interest Guidelines for Committee Members and Peer Reviewers* (Appendix 1) to ensure close adherence to these guidelines during appropriate LCBP processes.

Steering Committee Charge

The charge of the Steering Committee includes:

a) Provide a forum for discussion of policies and issues of mutual concern.
b) Identify topics of mutual interest in which the exchange of information and coordinated actions will be beneficial.
c) Oversee the implementation of the Lake Champlain long-term management plan *Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin* (*OFA*).
d) Identify key budget priorities annually to guide the early stages of draft budget development by LCBP committees and management, and identify additional resources necessary for plan implementation when possible.
e) Review the progress of cooperative efforts for management of Lake Champlain and make recommendations for future activities.
f) Seek the involvement of the public and appropriate academic institutions in the joint effort to guide management of the Lake.
g) Promote interaction and coordination among regulatory and management programs in the review of developments that affect the Lake.
h) Revise and update *OFA* on a five-year schedule.
i) Negotiate partnerships and commitments among agencies and groups to further the implementation of *OFA*.
j) Meet at least two times each year to facilitate communication and coordination among key partners working to implement *OFA*.
k) Monitor and evaluate progress against plan benchmarks and communicate that information by periodically producing an annual implementation status report and other education and outreach tools.

l) Select contractors and grant recipients for competed funds and approve Records of Decision as appropriate.
m) Charge the Executive Committee and advisory committees with tasks as appropriate and form *ad hoc* subcommittees for special tasks as needed.
n) Appoint chairs and members of the TAC, E&O, and HAPAC based, where possible, on nominations recommended by the Executive Committee and forwarded by its Chair.
o) Oversee the coordination of cultural heritage and recreational resource enhancement and stewardship programs of the Champlain Valley National Heritage Partnership.
p) Make adjustments in the composition of the Steering Committee as needed to achieve the goals of the plan.
q) Provide assistance to NEIWPCC on the hiring process for the LCBP and CVNHP Director (see **LCBP Staff Management and recruitment processes**, below, for more details on this process).

Executive Committee

To increase its effectiveness, the Steering Committee has assigned eleven of its members to comprise an Executive Committee to meet four to eight times per year between Steering Committee meetings to conduct LCBP business on behalf of the Steering Committee. New York, Vermont, and the US Environmental Protection Agency (USEPA) share chairmanship of the Executive Committee in a two-year rotation; this pattern contributes to stability in operational guidance of the LCBP, with appropriate leadership duties provided by the jurisdictions in which the LCBP is principally funded and in which the office is located.

Executive Committee Membership

The Executive Committee includes Steering Committee representatives of the New York State Department of Environmental Conservation, Québec Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (Ministry of Sustainable Development, Environment and the fight against climate change), Vermont Agency of Natural Resources, USEPA Region 1, USEPA Region 2, and the chairs of the six advisory committees (New York, Québec, and Vermont Citizen Advisory Committees (CACs), Technical Advisory Committee (TAC), Education and Outreach Advisory Committee (E&O), and Heritage Area Partnership Advisory Committees (HAPAC)). These eleven members make up the regular voting membership of the Executive Committee. However, any Steering Committee member may participate in any Executive Committee meeting with the option of voting if present. Executive Committee meeting draft agendas are distributed to the full Steering Committee one week in advance of meetings. Executive Committee members may designate a proxy to serve in their capacity. Designations must be submitted in writing to the LCBP/CVNHP Program Director.

Executive Committee Charge

a) Meet regularly to guide the work of the LCBP between Steering Committee meetings and provide interpretation of the intent of the Steering Committee to the LCBP management.

b) Receive its charge for special tasks from the Steering Committee and report its actions to the Steering Committee, which has final authority on all LCBP policy matters. The Executive Committee is normally delegated to act between Steering Committee meetings with the full authority of the Steering Committee, and subject to Steering Committee guidance.
c) Prepare the draft LCBP budget each fall based on task proposals recommended by LCBP management, and the chairs of TAC, E&O, and HAPAC. The Executive Committee Chair presents the recommended draft budget to the Steering Committee each winter for Steering Committee review, adjustment, and approval.
d) Nominate chairs and members of the TAC, E&O, and HAPAC, based on recommendations from Steering Committee members and LCBP staff. The Executive Committee is the sole source of advisory committee nominations eligible for consideration and appointment by the Steering Committee. See below on CAC appointments.
e) Consider potential contractors and grant recipients for competed funds based on LCBP staff reports of the competitive review processes and approve awards through **Records of Decision** as appropriate.
f) Adhere to the meeting protocols applicable to Steering Committee meetings.

Citizen Advisory Committees (CACs)

The New York, Québec, and Vermont CACs serve as important liaisons to the public. As positions become available on the CACs, the states and province ensure that representatives from environmental groups, agriculture, business and industry, sports and recreation, and local governments are included to the extent practicable.

CAC Membership

Stakeholder groups may nominate representatives, and the persons or agencies in New York, Québec, and Vermont who have the authority to appoint CAC representatives should include those nominees in the pool considered for appointment. NY CAC appointments are made by the Commissioner of NYS DEC; VT CAC appointments are made by the Governor, and Quebec CAC appointments are made by the Minister of Environment. All members of the CACs serve up to three-year appointments that are renewable. The CACs elect their chairs, who serve as voting members of the Steering and Executive Committees.

The Role of the CACs

a) Inform and involve the public on issues concerning the Lake and the Basin.
b) Provide a regular forum for interest groups and local governments to discuss the issues facing the Lake and the Basin.
c) Advise the Steering Committee about public concerns and interests.
d) Provide a link between the Steering Committee and LCBP staff and governmental bodies and groups implementing the plan at the local level.
e) Provide recommendations to the Steering Committee about evolving plan priorities.
f) Advise and encourage agencies responsible for implementing plan actions to follow through with their commitments, for example, by presenting an annual report of recommendations to the legislatures.

g) Participate in review panels for LCBP grant programs as requested.
h) Host public meetings for information exchange regarding plan implementation.

Technical Advisory Committee (TAC)

The Steering Committee appoints (for staggered three-year terms that are renewable), a Technical Advisory Committee comprised of professionals from academia, natural resource management agencies, and other sectors as it deems appropriate.

TAC Membership

TAC is comprised of five jurisdictional members and additional members-at-large appointed to three-year terms that are renewable.

a) Five jurisdictional members: one technical expert each from: New York State Department of Environmental Conservation, Québec Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (Ministry of Sustainable Development, Environment and the fight against climate change), and Vermont Agency of Natural Resources, will be appointed by their respective jurisdictions to provide both objective technical and scientific expertise *and* representation of their respective jurisdictional perspectives on technical issues. These three memberships have voting capacity. In addition, U.S. Environmental Protection Agency Regions 1 and 2 each are represented on TAC, with nonvoting status, so that technical expertise from the primary funding agency is available in TAC discussions.

b) All other TAC members are members-at-large. Members-at-large are appointed by the Steering Committee solely based on their technical and scientific expertise, in order to provide objective technical and scientific expertise needed by the TAC, but ***not*** to represent institutional or jurisdictional entities. No attempt is made to provide specific stakeholder representation on TAC, but balance of representation from jurisdictional areas may be considered. TAC members serve at the pleasure of the Steering Committee for three-year, renewable terms. Membership renewal is discussed with each individual member, the Chair of the TAC, the LCBP Technical Coordinator, and the LCBP/CVNHP Director. The LCBP/CVNHP Director has the authority to renew membership. The Chair of the TAC also is appointed by the Steering Committee and serves as a voting member of the Steering and Executive Committees.

The Role of the TAC

The role of the TAC includes the following:

a) Present the Steering Committee and LCBP staff with objective information to be used in the decision-making process as requested, including:
   i. emerging technical and scientific management issues,
   ii. the necessary research or actions to address those issues, and
   iii. draft task descriptions and funding recommendations.
b) Provide professional review of proposals for LCBP-funded technical and scientific studies and projects, as requested.

c) Evaluate interim and final products and reports for LCBP-funded technical and scientific studies and projects, as requested.
d) TAC meetings are open and accessible to the public except when TAC is obliged to meet in closed executive session.
    i. TAC will meet in closed executive session only when considering confidential matters limited to:
        a. review of competitive bids and awards,
        b. review of interim or final report drafts submitted to the LCBP by a subrecipient (contractor or subaward).
    ii. TAC will take no formal actions while in closed session.
e) On a meeting-by-meeting basis, any TAC member may, by written communication to the LCBP Director in advance of the meeting, designate another individual to participate in his or her stead at a TAC meeting with proxy voting rights. Proxy authorizations are noted in TAC meeting summaries.
f) No votes *in absentia* are permitted; members participating in real-time through conference call or other electronic or internet media sharing are considered present.
g) Committee members will be expected to review the *LCBP Conflict of Interest Guidelines for Committee Members and Peer Reviewers* (Appendix 1) to ensure close adherence to these guidelines during appropriate LCBP processes.

As organizations and partnerships established independently of the LCBP continue to address technical issues in the Basin and function in their own right, they also may provide important input to the TAC. These organizations include the Lake Champlain Fish and Wildlife Management Cooperative, the Aquatic Invasive Species Rapid Response Task Force, the Lake Champlain Research Consortium, Lake Champlain Sea Grant, and several other groups and partnerships.

Heritage Area Partnership Advisory Committee (HAPAC)

The Steering Committee appoints the Heritage Area Program Advisory Committee to provide advice concerning the implementation priorities for the *Champlain Valley National Heritage Partnership Management Plan*.

HAPAC Membership

HAPAC is composed of professionals from public and private sectors knowledgeable in fields that address regional history, historical interpretation, archeology, cultural heritage, conservation, sustainable agriculture, outdoor recreation, and tourism. HAPAC appointments are made solely on the basis of professional expertise in order to provide objective guidance needed by the LCBP, but not to represent institutional or jurisdictional entities. HAPAC members serve 3-year, renewable terms. No attempt is made to provide stakeholder representation on HAPAC. HAPAC members serve at the discretion of the Steering Committee. Membership renewal is discussed with each individual member, the Chair of the HAPAC, the LCBP Cultural Heritage and Recreation Coordinator, and the LCBP/CVNHP Director. The LCBP/CVNHP Director has the authority to renew membership.

The chair of the HAPAC, appointed by the Steering Committee, serves as a voting member of the Steering and Executive Committees.

The Role of the HAPAC

The role of the HAPAC includes the following:

a) Present the Steering Committee and LCBP staff with objective information to be used in the decision-making process as requested, including:
   i. emerging heritage resource management issues,
   ii. the necessary research or actions to address those issues, and
   iii. draft task descriptions and funding recommendations.
b) Provide professional review of proposals for LCBP-funded heritage-related implementation tasks as requested.
c) Evaluate interim and final products and reports for LCBP-funded heritage-related studies and projects as requested.
d) Advise the Steering Committee and staff regarding opportunities for trans-boundary partnerships, key partnerships, and cooperative projects both within the Champlain Valley National Heritage Partnership and adjacent areas.
e) HAPAC meetings are open and accessible to the public except when HAPAC is obliged to meet in closed executive session.
   i. HAPAC will meet in closed executive session only when considering confidential matters limited to:
      a. review of competitive bids and awards,
      b. review of report drafts submitted to the LCBP by a subrecipient (contractor or subaward).
   ii. HAPAC will take no formal actions while in closed session.
f) On a meeting-by-meeting basis, any HAPAC member may, by written communication to the LCBP Director in advance of the meeting, designate another individual to participate in his or her stead at a HAPAC meeting with proxy voting rights. Proxy authorizations are noted in HAPAC meeting summaries.
g) No votes *in absentia* are permitted; members participating in real-time through conference call or other electronic or internet media sharing are considered present.
h) Committee members will be asked to review the *LCBP Conflict of Interest Guidelines for Committee Members and Peer Reviewers* (Appendix 1) to ensure close adherence to these guidelines during appropriate LCBP processes.

As organizations and partnerships established independently of the LCBP to address cultural heritage and recreational issues in the Basin continue to function independently, they may also provide input to the HAPAC. These organizations include the regional marketing organizations and chambers of commerce, scenic byways programs, cultural

heritage tourism initiatives, arts councils in both states, and several other groups and partnerships.

Education and Outreach Advisory Committee (E&O)

The Steering Committee will appoint an E&O Advisory Committee comprised of professionals from educational institutions and organizations in the Basin and with representation from the CACs and other appropriate sectors.

E&O Committee Membership

The E&O Committee is composed of professionals from public and private sectors knowledgeable in fields that include education, public information technology, electronic and broadcast media, and outreach pertaining to environmental stewardship and related topics of the plan. The E&O members serve at the discretion of the Steering Committee. E&O appointments are made solely on the basis of professional expertise in order to provide objective guidance needed by the LCBP, but not to represent institutional or jurisdictional entities. No attempt is made to provide stakeholder representation on E&O. E&O members serve for three-year terms that are renewable. Membership renewal is discussed with each individual member, the Chair of the E&O Committee, the LCBP Education and Outreach Coordinator, and the LCBP/CVNHP Director. The LCBP/CVNHP Director has the authority to renew membership. The chair of the E&O Committee, appointed by the Steering Committee, serves as a voting member of the Steering and Executive Committees.

The Role of the E&O Committee

The role of the E&O Committee includes the following:

a) Present the Steering Committee and LCBP staff with objective information to be used in the decision-making process as requested, including:
   i. emerging educational and outreach opportunities and issues,
   ii. the necessary programmatic actions to address those issues, and
   iii. draft task descriptions and funding recommendations.
b) Provide professional review of proposals for LCBP-funded education and outreach implementation tasks, as requested.
c) Evaluate interim and final products and reports for LCBP-funded education and outreach tasks, as requested.
d) Advise the Steering Committee and staff regarding opportunities for trans-boundary partnerships, key partnerships, and cooperative projects to enhance education and outreach program effectiveness.
e) Advise the Steering Committee and staff regarding opportunities for the application of multimedia and multimodal technical tools to enhance education and outreach program effectiveness.

f) E&O meetings are open and accessible to the public except when E&O is obliged to meet in closed executive session.
    i. E&O will meet in closed executive session only when considering confidential matters limited to:
        a. review of competitive bids and awards,
        b. review of reports drafts submitted to the LCBP by a subrecipient (contractor or subaward).
    ii. E&O will take no formal actions while in closed session.
g) On a meeting-by-meeting basis, any E&O member may, by written communication to the LCBP Director in advance of the meeting, designate another individual to participate in his or her stead at an E&O meeting with proxy voting rights. Proxy authorizations are noted in E&O meeting summaries.
h) No votes *in absentia* are permitted; members participating in real-time through conference call or other electronic or internet media sharing are considered present.
i) Committee members will be asked to review the *LCBP Conflict of Interest Guidelines for Committee Members and Peer Reviewers* (Appendix 1) to ensure close adherence to these guidelines during appropriate LCBP processes

Subcommittees and Ad Hoc Committees

As deemed necessary, the Steering Committee may establish and populate additional subcommittees or ad hoc committees where membership may include Committee members as well as non-members. The Steering Committee may assign the LCBP Director the responsibility of identifying appropriate membership for ad hoc subcommittees. All subcommittees will operate according to the roles and responsibilities established for the standing committees, as outlined above. The role of subcommittee chairs in reporting to the Steering Committee shall be determined by the Steering Committee upon the creation of each subcommittee. Subcommittee chairs may report directly to the Steering or Executive Committee, to another standing subcommittee, or to the LCBP/CVNHP Director.

The Host Entity

In 1992, the Lake Champlain Management Conference selected the New England Interstate Water Pollution Control Commission (NEIWPCC) to receive LCBP funding to serve as the Host Entity for the LCBP. NEIWPCC is a congressionally authorized non-profit interstate organization, formed in 1947. NEIWPCC's programmatic direction is decided by its Commission of 35 persons appointed by the governors of its member states; Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

The Commission serves its member states by coordinating efforts that encourage cooperation among the states, developing resources that foster progress on water issues,

representing the region in matters of federal policy, training environmental professionals, managing programs and administering grants, initiating and overseeing scientific research, educating the public, and providing overall leadership in water management and protection. NEIWPCC's core work covers a variety of topics related to clean water including wastewater and onsite systems, water quality standards, wetlands, pollution abatement, stormwater, source water and groundwater, climate change, and nonpoint source pollution. The Commission has its headquarters in Lowell, Massachusetts with various satellite offices throughout the region.

The Host Entity, in conjunction with the Program Director, is required to regularly report to EPA, GLFC, NPS, and other funding sources on the deliverables, outputs, outcomes, and financials in response to guidance and requirements.

The Role of the Host Entity

In accordance with NEIWPCC's annual work tasks for LCBP approved by the Lake Champlain Steering Committee, and the award workplans approved by the EPA, GLFC, and NPS, NEIWPCC's role as Host Entity is to:

- Assist and support the LCBP in implementing OFA.
- Provide programmatic advice; hire and supervise staff; manage subawards and contracts; and provide administrative, financial, and human resources support.
- Provide direction to the LCBP and the work of its staff.
    - Provide input to and oversight of the annual work plans and related program resource allocations in coordination with the Steering Committee and LCBP/CVNHP Director.
    - Contribute to and review technical and communications products to ensure appropriate deliverables.
    - Provide direction to the LCBP Director in consultation with the Lake Champlain Steering Committee.
    - Evaluate the LCBP's administrative structure and relationship in consultation with the Lake Champlain Steering Committee when necessary.

Collectively, specific tasks of NEIWPCC Lowell staff include, but are not limited to:

- Supervision of NEIWPCC-LCBP employees.
    - Supervise LCBP/CVNHP Director.
    - Communicate with the LCBP Director on a regular basis.
    - Evaluate the job performance of the LCBP Director. After developing a process in conjunction with NEIWPCC's human resources team, NEIWPCC will consult with the current Executive Committee Chair for feedback on the performance of the LCBP/CVNHP Director during the applicable review

period. The Executive Committee chair may elect to coordinate feedback from the Steering Committee membership.
    - Consult with the LCBP Director to evaluate the job performance of other LCBP staff.
    - Assist in other LCBP staff performance appraisals.
    - Approve timesheets, expense vouchers, and requests for leave.
- Programmatic
    - Develop work plans and budgets for each annual funding source (EPA, GLFC, NPS, and others); coordinate same with LCBP Director.
    - Review and finalize quarterly progress reports provided by the Program Director that describe LCBP activities and outputs. Submit reports to appropriate funding source.
    - Jointly with LCBP Director and the Lake Champlain Steering Committee, ensure projects address priority topics outlined in OFA and support the mission of protecting and preserving Lake Champlain and its watershed through partnerships that conserve and restore natural resources, enhance water quality and promote community involvement.
    - Coordinate match documentation required to be eligible for funding from the EPA, NPS, and other funding sources as needed
    - Engage in program development.
- Interfacing with EPA Region 1, the Great Lakes Fishery Commission, the National Park Service, and other funding sources (as the grant recipient)
    - Prepare grant applications to funding sources
    - Accept and administer the annual federal grants for LCBP/CVNHP funding.
    - Communicate with EPA Project Officer and other funding agents on a regular basis.
    - Meet with EPA Project Officer annually to coordinate issues between NEIWPCC/LCBP, the states, and EPA Regions 1 and 2.
    - Prepare required application, narrative and financial reports, and progress reports.
- Human resources support
    -
    - Lead hiring process for staff positions: draft job descriptions, advertise the positions; collect and review all resumes and field all employment questions; coordinate and schedule interviews; conduct interviews and select the ideal candidate (in cooperation with search committees, as appropriate); conduct reference checks and offer employment; and conduct any other aspects of the hiring process. Work collaboratively with the LCBP Director throughout the process.

        - For the LCBP/CVNHP Director position, NEIWPCC will consult with the current Chair of the Lake Champlain Executive Committee throughout the hiring process. The hiring committee, led by a NEIWPCC Human Resources designee, will be developed through consultation with the current Chair of the Lake Champlain Executive Committee. The EPA and NPS will have representation on the hiring committee; NEIWPCC and the Chair of the Executive Committee will be responsible for coordinating a maximum of two additional remaining representatives of the Steering Committee. The Position Description will be developed by the NEIWPCC HR designee in consultation with the other members of the hiring committee prior to issuance of a solicitation for applications. In addition, the hiring process may include the option of public presentations by the final candidates, on a topic selected by the hiring committee, with an opportunity for feedback from the participants.
        - LCBP staff are managed day-to-day by the LCBP and CVNHP Director, or other designated supervisors. All staff positions subordinate to the Director are hired via a typical competitive process coordinated by NEIWPCC, according to their standard hiring procedures, in close consultation with the LCBP/CVNHP Director and other LCBP staff as appropriate. The Chair of the Technical, Education and Outreach, or Heritage Area advisory committees may participate in the hiring process for the Coordinators of the respective committees.[1]
    - Job descriptions and specifications, salary scale, and all benefits follow NEIWPCC policies and procedures.
    - Provide all new employees with an orientation meeting in Lowell, Massachusetts. This orientation will serve to familiarize new employees with the NEIWPCC employee handbook, benefits, etc.
    - Address staff issues, as appropriate.
- Contractual and legal support
    - Act as contracting arm on behalf of LCBP efforts to accomplish OFA tasks.
    - Set up and manage agreements regarding office space arrangements and technical support.
    - Review and approve Requests for Proposals (RFPs) for third party contracts and participate in technical review of proposals, in accordance with

[1] Lake Champlain Coordinator positions for the three Jurisdictions (New York, Québec, and Vermont) are hired via typical processes within the respective jurisdictions, in consultation with the Chair of the Citizen's Advisory Committee for that jurisdiction and the LCBP/CVNHP Director.

NEIWPCC and LCBP templates and procedures. Post RFPs on NEIWPCC and LCBP websites.
    - Execute and manage contracts/MOAs/subawards utilizing NEIWPCC standard templates; ensure compliance with contract terms and conditions.
    - Provide liability coverage, as appropriate, for NEIWPCC and NEIWPCC staff, NEIWPCC officers, and NEIWPCC commissioners for involvement in performing work conducted under appropriate grants, cooperative agreements, and contracts.
    - Provide recommendations to the Lake Champlain Steering Committee on improving contract scope, deliverables, and outcomes, or otherwise enhancing value and application of contracts and services, where appropriate.
- Financial
    - Prepare, maintain, and manage grant budgets; track expenditures by task, output and/or programmatic activity, planning, and work plan facilitation.
    - Process staffs travel reimbursements and timesheets.
    - Provide comprehensive bookkeeping and accounting services, including receipt and disbursement of funds, bill and invoice processing, and tax forms to personnel and independent contractors.
    - Ensure all relevant financial statements and tax documentation are prepared and filed.
    - Ensure all audited annual financial statements and unaudited quarterly financial statements are prepared and filed.
    - Provide all appropriate income tax reporting information/forms to personnel and independent contractors.
    - Submit the required financial reports to USEPA, including SF-334 "MBE/WBE utilization Under Federal Grants, etc." as necessary, and program progress reports and final award report and SF-425 Federal Financial Report (FFR), including interim and final FFRs as necessary. Submit required financial reports to other funding agencies where applicable.
    - Enter data into the government's Federal Funding Accountability and Transparency Act Subaward Reporting System, as required for EPA subawards.
- Quality Assurance
    - Provide a quality assurance program manager to review and approve Quality Assurance Project Plans. Provide guidance on which projects require QAPPs and how to develop QAPPs. NEIWPCC supports the goal of quality assurance and is committed to using only data of known and acceptable quality. NEIWPCC uses a quality management system, documented in an EPA-approved Quality Management Plan (QMP).

- Other
    - Facilitate coordination with other NEIWPCC activities as appropriate.
    - Provide assistance to LCBP to attract and direct federal and other resources to local needs, build needed scientific and watershed information, inform the public and policy makers, convene collaborative workgroups around key issues in the region, provide technical assistance for implementation actions of local grassroots-level organizations, promote an ecosystem perspective, and bring together funding, partners and projects to implement the defined goals and objectives of OFA.

LCBP and CVNHP Director

The Program Director serves many functions, including day-to-day management of LCBP/CVNHP activities, day-to-day staff supervision, providing administrative and technical support to Committees, conducting public outreach and education activities, coordinating and integrating activities with existing water quality and natural resource protection and restoration efforts in the region, and identifying partners that will advance OFA implementation. The LCBP/CVNHP Director ensures that all Committee decisions, including awarding of grants, are made in compliance with the LCBP Conflict of Interest Guidelines approved by the Lake Champlain Steering Committee (Appendix 1). In addition, the Program Director solicits local support for the Program, identifies additional sources of funding, and facilitates partner actions to help ensure there is no duplication of effort among partners.

Specific tasks of the LCBP/CVNHP Director include:

- Supervision
    - Supervise LCBP staff in consultation with NEIWPCC Lowell staff.
    - Evaluate the job performance of the LCBP staff, in consultation with NEIWPCC Lowell staff.
- Programmatic
    - Participate in and serve as primary staff support to the Steering Committee. Schedule meetings, develop agendas in coordination with the Chair, prepare reports on recent activity, provide technical support, channel information, and present recommendations to the Steering Committee for their approval. Ensure geographic balance of Steering Committee meeting locations in New York, Quebec, and Vermont.
    - Participate in and serve as primary staff support to the Executive Committee. Schedule meetings, develop agendas in coordination with the Chair, prepare reports of recent activity, provide technical support, channel information,

and present recommendations to the Executive Committee for their approval.
    - Work collaboratively with NEIWPCC staff on development of specific work plans and budgets for submission to respective funding agencies, following approval of the annual budget and general workplan by the Lake Champlain Steering Committee.
    - Prepare and submit quarterly progress reports that describe LCBP/CVNHP activities, outcomes and outputs to NEIWPCC Lowell staff.
    - Assist and support LCBP in implementation of OFA.
    - Ensure annual budget workplans address priority issues in OFA.
    - Track and report to NEIWPCC and the Lake Champlain Steering Committee on progress toward completion of work plan deliverables.
    - Lead activities outlined in EPA, GLFC, NPS, and other work plan(s)
    - Strengthen partnerships and working relationships with key stakeholder organizations, including those involved with scientific research, advocacy, and industry. This includes state and federal agencies, municipalities, academic institutions, non-profit organizations, and industries.

- Interface with EPA Regions 1 and 2, GLFC, NPS, and other funding sources
    - In consultation with NEIWPCC, communicate with Project Officers at EPA, GLFC, NPS and other funding sources on a regular basis.
    - Jointly with NEIWPCC, meet with EPA Project Officers annually to coordinate issues between NEIWPCC/LCBP, the states, and the EPA.
    - If requested, prepare for and complete EPA Program Evaluations and site visits in consultation with Steering Committee and Host Entity.
- Other
    - As an employee of NEIWPCC, and as a supervisor of other NEIWPCC staff, demonstrate a thorough understanding of NEIWPCC policies and procedures.
    - Demonstrate a thorough understanding of LCBP's programs, organization, and policies.
    - Identify the necessary skills and expertise for additional staff positions in consultation with NEIWPCC and the Lake Champlain Steering Committee.
    - Communicate all efforts to NEIWPCC and the Lake Champlain Steering Committee on a regular basis
    - Remain up to date on regional and national developments relevant to LCBP/CVNHP mission, programs and projects.
    - Represent the LCBP/CVNHP in regional and national forums.
    - Provide internal and external leadership for the program, ensuring focus and progress on strategic priorities, as well as effective communication and

collaboration with and among partner agencies, organizations, academic institutions, etc.
- Leverage LCBP/CVNHP resources, ensure best use of limited resources, minimize duplication of effort, and optimize public and community-based support.

Funding Source Coordination

NEIWPCC and LCBP staff will work with the assigned coordinators from each agency or organization providing funds to support the LCBP and Lake Champlain work via NEIWPCC. Typically, NEIWPCC and LCBP staff will ensure that workplan tasks are met according to the timelines established within each funding agreement. EPA staff provide a more involved role in the management of the Lake Champlain Steering Committee, the LCBP, and advisory Committees.

The Environmental Protection Agency

The EPA Regions 1 and 2 Offices and their Lake Champlain Basin Program staff Coordinators (the Coordinators) support the LCBP and NEIWPCC in many ways. A manager from EPA Region 1 and from Region 2 serves as a voting member of the Steering and Executive committees and the Lake Champlain Coordinators serve as the alternates on those committees. The Coordinators are non-voting members of the Technical Advisory Committee and may serve on other committees as deemed appropriate by the LCBP Director and the EPA. The Coordinators serve as the Project Officer and administer the Program's CWA Section 120 cooperative agreements, which includes reviewing work plans, reports, and participating in the program in a meaningful way. The Coordinators also serve as the primary contact between EPA and the LCBP, including serving as the liaison between LCBP and EPA Headquarters in the event of information requests, the program evaluation, and any other LCBP-related matters.

The Role of the EPA

Specific roles and responsibilities of the EPA Lake Champlain Basin Program Coordinators are as follows:

- Serve as the primary liaison between NEIWPCC, LCBP, and EPA:
  - Represent EPA priorities and programs as an alternate member of the LCBP Steering Committee and Executive Committee, and as an ex-officio member of the Technical Advisory Committee;
  - Serve as a conduit between the LCBP and EPA programs; identify opportunities for mutual assistance while also meeting individual program

strategic goals.
    - Communicate LCBP interests during EPA Regional program decision-making to ensure decision makers understand implications for attainment of OFA goals and objectives.
    - Inform LCBP of EPA and other relevant initiatives that may affect LCBP study areas or OFA implementation.
    - Act as liaison to EPA programs to assist in meeting LCBP OFA goals and objectives.
    - Keep Region 1 and 2 management and staff informed about LCBP activities.
- Advise LCBP about EPA statutory and regulatory requirements.
- Facilitate networking and tech transfer; e.g., help inform LCBP about steps other programs are taking to address specific program elements or management issues.
- Assist NEIWPCC and LCBP with agreement/grant application, program management, and financial management requirements:
    - Serve as Project Officer and technical contact for the annual Section 120 cooperative agreement (review work plans; monitor performance; interface with Regional grants administration; notify NEIWPCC and LCBP of grant reporting requirements).
    - Inform NEIWPCC and LCBP about other core water program funding opportunities (grants and otherwise) that would support programmatic and implementation activities.
- Maintain contact and local presence with LCBP to support Lake Champlain management goals.
- Review, approve, and submit to EPA Headquarters reporting and budget data by the required deadline.
- In general, anticipate and respond to LCBP needs in a timely manner.

Appendices

1. Lake Champlain Basin Program Conflict of Interest policy

APPENDIX II: LCBP ACCOMPLISHMENTS SINCE 2010 OFA

2011–2015 LCBP Management Plan Progress: Technical Projects

# Projects	Category	LCBP Sum Total	Sum of Achievements*
27	Ag Phosphorus	$2,747,851	500+ conservation practices implemented on 300+ farms, reducing runoff from 60,000+ acres; outreach to 1,100 farmers
47	AIS Outreach	$1,078,938	130,000+ boats inspected, 320,000+ visitors reached, 11,000+ organisms removed, 24 AIS exhibits; ~85 stewards
26	AIS Prevention	$848,016	16 acres intensively treated for Asian clam, continuation of water chestnut harvesting, 14 backcountry waterbodies surveyed, NE Arm and Missisquoi surveyed, 28 tons of frogbit removed, 3,360 cubic feet of milfoil, 3,240 lbs and 700+ bags of milfoil removed, 2 non-motorized, 1 motorized boat wash stations constructed, 10,157 cormorants culled
2	Climate Change	$95,000	Outreach, technical paper on CC/Stormwater
5	Conservation	$75,928	726 acres conserved
9	Fish Passage/ Native Species	$235,060	610 culverts/barriers assessed, 2 dam removals, 4 culvert replacement designs, 3 culverts replaced (11 miles of habitat opened), post-tournament bass survival analyzed, common tern population analyzed
10	Flooding	$327,884	Community outreach and economic analysis, LC flood maps produced for VT, QC and Clinton County NY, 2 new gages installed, flood resilience work
7	Habitat Assessment/ Forestry	$297,882	4,805 acres assessed for erosion control; 1.5 miles of trail restored, wildlife corridors and critical habitats identified in 30 acres. 62 skidder bridges installed. Malletts Bay Littoral Zone mapped
19	Monitoring	$3,976,348	Long Term Monitoring Program, BGA Monitoring, Stream and Lake Met Gages, Load Data Analyzed, 1 habitat monitoring project
8	Research	$997,391	Critical Sources of P identified, Internal P load model, streambank P loads estimated, P adaptive management analyzed, Ag edge of field monitoring, best practices evaluated, tile drain research; Economic impact estimated; LiDAR, Land use/Land Cover and Impervious Surface Area mapped
27	Riparian/Shoreline Restoration	$380,734	165+ acres restored or conserved, nearly 50,000 trees planted, 22,000+ linear feet of shoreline restored
48	Stormwater	$1,336,056	326 acres treated, 323 mile of roadside, 16,644 kg/yr TSS removed, initiated NYS BBR program and mapped Plattsburgh system, IDDE for 6 municipalities
8	Toxins	$258,748	Cyanobacteria monitoring, atmospheric mercury monitoring, fish mercury and PCB monitoring, mercury thermometer collection, and road salt
3	Wastewater	$65,550	Septic pump-outs: 88,000 gallons; 56 homes; 150 homeowners educated + Outreach and New Treatment Methods Researched
246	**Total Projects**	**$12,721,386**	*** Achievements are summarized from closed local and large research projects, as well as two staff-driven products. Not all completed projects reported summarized data. Total costs include both closed and open projects.**

2011–2015 LCBP Management Plan Progress: E&O Projects

# Projects	Category	LCBP Sum Total	Sum of Achievements*
6	Invasive Species Education/ Monitoring	$37,664	Trained water and backcountry monitors to survey areas in and around the Lake Champlain Basin and the Adirondack Park. They are also stationed at multiple campgrounds, farmers markets, libraries, and other public facilities where whey share basin and AIS information. Developed AIS exhibit at ECHO that reaches 280,000 visitors and online guests annually. Environmental Issues Educators in the tri-lakes region reached between 1800 and 4000 members of the public each season, and have the capacity to reach the 50,000 individuals who visit the Paul Smith's VIC seasonally.
3	Basin History Education	$13,574	Supported program development and implementation for Lake Champlain history and stewardship in conjunction with the purchase of an ROV at the LCMM. Funded research, development, and fabrication of historically-accurate uniforms and equipment for interpretive programming at Fort Ticonderoga, which reaches 70,000+ visitors annually. Increased the public's understanding of the War of 1812 at the local level by supporting funding to bring the Lois McClure to Rouses Point during the yearly commemoration.
7	Technical Issue Training	$42,920	Supported 15 seminars/workshops on topics such as BMPs, RAPs, Low-Impact Development, and stormwater management throughout NY and VT, with a combined 500 superintendents, DPW, town board members, DOT, and other stakeholders in the public, private, state and federal sectors in attendance.
12	Community Action/ Awareness	$79,804	Completed 3000+ plantings throughout the Lake Champlain Basin to support streambank and nursery restoration programs, in addition to 5 streambank stabilization project areas. Low-impact development, bio-retention, rain garden, and invasive plant removal trainings and workshops created many additional action projects that were supported by 2000+ volunteers. Mitigated runoff from >50,000 sq. ft. of impervious surface through education, outreach, technical assistance, and incentives programs. Removed 505,000 pieces of trash along Lake Champlain, leading to STEM curriculum and awareness of microplastic and trash issue in the Lake and shoreline. Developed Winooski River paddler information network, and created 2 launch sites with education components. Developed stormwater runoff education program that placed 300 storm drain markers in NY towns in the Basin, later extending to other towns in Vermont as well.
18	School Outreach Programs	$113,713	Lake George Association's Floating classroom held over 400 sessions, reaching 9148 students and adults over 64 schools and organizations. MRBA's Bugworks held 43 sessions, reaching 733 students and teachers in the MRB. 20+ programs, with 2130+ students, teachers, and adults in hand, created print and video media and participated in educational programming and activities focusing on fire tower, local history, lake ecology, stewardship, stormwater issues, and other watershed-related material.
2	Summer Youth Programs	$11,490	Wacky Water program in Essex County, NY, reached 700 K-6 youth campers with hands-on water quality education and conservation practices. The Sustainable Outdoor Leadership and Education Camp educated 60 youth to be naturalists and conservation stewards through hands-on learning.

# Projects	Category	LCBP Sum Total	Sum of Achievements*
18	Education via Media/ Communications	$107,115	Developed and aired 2 PBS documentaries on AIS and local climate change education. Developed and aired 46 two-minute news segments addressing a variety of lake issues, reaching ~44,000 homes at each broadcast. Organized and developed print media for 40+ workshops, treks, and presentations on a variety of lake issues, such as AIS, storm-water runoff, climate change, stewardship and lake ecology. Created bikeway maps, interpretive guide, bilingual boating booklets, and 150+ informative signs and decals to identify, foster understanding, and expand upon human health, stormwater, and other water quality issues and recommendations. Created website and digital interpretive plan to expand visibility for product material and learning opportunities.
12	Community Development	$61,777	Researched, organized and implemented presentations and demon-strations throughout the LC Basin to foster public understanding and inspire action on a number of topics, including but not limited to: addressing stormwater runoff and BMPs, watershed ecology and overland flow of water, proper pharmaceutical disposal, lake history, local heritage, water quality issues and impacts, soil health, history of fire towers in the Adirondacks and understanding stream processes. Each program also included print and/or online infor-mation, while others also paired community learning opportunities with student curriculum development and demonstrations (watershed model, flume model, skidder bridge, stormwater mapping).
3	Teacher/Curriculum Development	$21,000	Developed 5 instructional modules from which teachers can build single or multiple-day watershed-based programs. Supported 5 workshops, reaching 85 educators throughout NY, VT, as well as NH, to extend watershed education understanding and programming
81	**Total Projects**	**$489,057**	*** Achievements are summarized from closed local proj-ects. Not all completed projects reported summarized data. Total costs include both closed and open projects.**
LCBP Staff Accomplishments			
	Resource Room at ECHO Leahy Center		3 LCBP staff, interns, and volunteers provided accurate, informative lake-based messaging and educational material to nearly 138,000 youth and adult visitors 360 days per year
	Online/Social Media Outreach		Redesigned LCBP website in April 2013, and regularly update and edit information to achieve 25-30K visits annually. Organize, edit, and publish LCBP's E-Newsletter quarterly. Generate multi-weekly posts to Facebook to disperse current, local information quickly to the public (10-20 likes and shares/week). Maintained and are currently redesigning the online Basin Atlas.
	Publication Development and Dissemination		Designed and develop LCBP's State of the Lake Report every 3 years, all of which is done in-house; approximately 12K copies were published in 2012 and again with the 2015 version. Designed, produced, and disseminated LCBP's Annual Report. Designed most end products such as signage, posters, rack cards, maps, etc... that deliver information to the public, as requested by all LCBP staff.
	Outreach by E&O Staff		Delivered 20+ watershed and wetland-based, hands-on programs at elementary and middle schools throughout the Basin yearly. Organized and often delivered 20+ lake-based community presen-tations throughout the Basin yearly, such as the Love the Lake Series and State of the Lake presentations. Delivered 20-25+ watershed and wetland-based, hands-on programs at field trip locations throughout the Basin yearly. Delivered interactive watershed-based demonstration to 300+ youth and adults at Ed Weed Fish Culture Station's Annual Free Fishing Day.

2011–2015 LCBP Management Plan Progress: CVNHP Projects

# Projects	Category	LCBP Sum Total	Sum of Achievements*
5*	Cultural and Historical Research (9.1-9.2)	$28,893	Researched the Marjorie Lansing Porter music collection, analysis and artistic representation of the historic landscape of Lake George Village; research and restoration of a firefighting hand-pumper, development of the 2009 Lake Champlain Quadricentennial Report; site assessment of shipwreck of the US La Vale, research and development of a guide to Plattsburgh Oval.
7	Recreation and Accessibility to Resources (9.6-9.8)	$47,833	Interpretation of sport fishing on Lake Champlain, a longboat rowing program in Chazy; on-water mapping of Otter Creek by a youth group; three interpretive water trail grants;
21	Interpretation and Education (9.9-9.12)	$144,476	Seventeen individual grants focused on interpretation and education of cultural and natural heritage issues, the National Geographic War of 1812 Guide, Vermont Civil War conference.
8	Coordination, Communication, and Capacity Building (9.13-9.15)	$34,075	Eight grants focused on the War of 1812 and the American Civil War
3	Marketing the CVNHP (9.16-9.18)	$133,401	Tours of the Lois McClure 2012, 2013 and 2014 ($79,400 from Great Lakes Fishery Commission funds).
39	**Total Projects**	**$388,678**	***Most CVNHP projects cross several *OFA* categories, but the classification here identifies the most-significant focus of each project. Achievements are summarized from projects accomplished between August 20, 2011 and September 30, 2016.**
CVNHP In-Office Accomplishments			
	Wayside Exhibits		2012: 16 exhibits; 2013: 19; 2014: 12; 2015: 15
	Publications		CVNHP Orientation Guide, Champlain Valley Wine Trail rack card, 2015 Passport Stamp Card, 2016 Centennial Passport Stamp Card; Western New England Greenway maps; Web-driven Lake Champlain Bikeway maps;
	Interpretation		Kamp Kill Kare, Exhibits in Gordon-Center House, Peru Rest Area; Valcour Island Interpretive Trail; Interpreting Sustainable Agriculture in the Champlain Valley; online geology guide;
	Partnership Building		Champlain Valley Wine Trail, Vermont Civil War Sesquicentennial Commission, NYS DOT, Lake Champlain Visitor Center; Regional Stakeholder Groups, Annual International Summit 2012-2015

LAKE CHAMPLAIN BASIN PROGRAM
and
CHAMPLAIN VALLEY NATIONAL HERITAGE PARTNERSHIP

Policy and Guidelines on Conflicts of Interest

Revised June, 2017

The Guidelines below apply to all operations of the Lake Champlain Basin Program (LCBP) and Champlain Valley National Heritage Partnership (CVNHP), including the external review of funding proposals, and to members of the Committees of the LCBP and CVNHP who are involved in reviews or funding decisions. These Guidelines are to be used when developing requests for proposals (RFPs), evaluating proposals, recommending funding awards, and developing budget priorities. Committee members who receive confidential information must take personal responsibility to avoid actual or potential conflicts of interest.

Introduction

The purpose of these Guidelines is to ensure that activities, particularly those related to the distribution of funds, are conducted in a fair manner and that there is neither a motivation, nor an appearance of a motivation, for private or personal gain.

This document addresses both actual and potential conflicts of interest. An actual conflict of interest could arise when an individual has a direct personal, familial, or financial relationship or connection with any of the activities, applicants, or proposals under review. If this relationship could directly influence a member's personal or professional benefit or interest, the relationship should not factor into the decision at hand and the individual should not be part of the decision making process.

A member has a potential conflict of interest if s/he has a relationship with the activities, applicants or proposals being reviewed that could potentially cause the member's professional judgement or actions to be impaired, or could influence their objectivity or impartiality. For example, a Committee member who is employed by an entity within an organization (e.g., Department X within Agency Z) and involved in a decision regarding a different entity within the same organization (e.g. Department Y within Agency Z) could be biased in favor of the sister entity.

For the purposes of LCBP and CVNHP committee members, a conflict of interest occurs when an LCBP or CVNHP Committee or subcommittee member

- stands to receive a direct financial benefit from a matter under discussion,
- has a personal or familial interest that may be substantially affected by a matter under discussion by the committee,
- has any other personal or professional interest or obligation that may affect the member's judgment regarding a matter under discussion, or
- may benefit personally or privately from the outcome of a decision or discussion.

Guidelines

1. **All** LCBP and CVNHP Committee members (members) are responsible for adhering to this Policy and Guidelines on Conflicts of Interest, and are encouraged to consult with the LCBP and CVNHP Director and the general procurement standards and competition requirements outlined in the Uniform Grant Guidance at *2 CFR 200.318 – General*

Procurement Standards and *2 CFR 200.319 Competition*. If the ability of a committee member to be impartial in a decision is impaired, this individual has a conflict of interest and must discuss this conflict with the LCBP and CVNHP Director.

2. **Members of LCBP and CVNHP Advisory Committees.** Individuals who contribute to the development of an RFP shall not respond to that same request in any capacity, including the provision of letters of support or recommendation to any entity that submits or is included in a proposal. Employees from organizational entities that employ staff who assist in the development or drafting of specifications, requirements, statements of work, or invitations for bids or requests for LCBP or CVNHP proposals must be excluded from competing for such procurements. See *2 CFR 200.319 Competition.*

   Individuals shall not participate in any review of an LCBP-funded task undertaken by their employer or from the same organizational entity, specifically a:
   - Department within an Agency (Vermont State Government),
   - Ministry (Quebec Government),
   - Division within a Department (New York State Government),
   - Department within a Municipal or County Government,
   - Academic department within a College or University,
   - Institution, such as a Conservation District or a formal Coalition, or
   - Organization, such as a Commission, Non-profit or For-profit Corporation,

   that has submitted a proposal which is under consideration. Recusal from participation requires absence from the discussion; presence is considered participation.

3. **Members of the Lake Champlain Steering Committee and Executive Committee.** Lake Champlain Steering Committee and Executive Committee members who represent government entities may be responsible for decisions that may affect their government organization; the knowledge they share is important to the successful outcome of program activities and as such these members will not be required to recuse themselves from the decision-making process. These members must disclose the nature of their relationship to the decision with other committee members and the LCBP and CVNHP Director as described in item #4 below. However, any Lake Champlain Steering Committee member who may stand to benefit or gain personally or privately from the outcome of a decision will have a legal conflict of interest and will be recused from participation in that decision. All Steering Committee members who are employed by for-profit private entities (e.g., engineering or consulting firm) will be recused from discussion of budget items that may affect their organization, regardless of whether they stand to benefit or gain personally from the outcome of the decision.

4. **Any member of LCBP Advisory Committees or subcommittees, or a non-governmental employee who is a member of the Lake Champlain Steering Committee, will be recused from the relevant discussion and decision if they have a conflict of interest. In addition, members must disclose a potential conflict of interest as soon as circumstances arise for it to become apparent.** The individual should contact the LCBP and CVNHP Director to discuss the issue; the Director may then choose to discuss the matter with the Chairs of the Steering Committee and Executive Committee. All Committee members who are employed within an organization, but not necessarily within the same entity of that organization where employment might constitute a potential or actual conflict of interest, must disclose this conflict of interest

in writing to the LCBP and CVNHP Director, and convey this conflict to the committee with which they are working. LCBP and CVNHP staff will be responsible for maintaining all conflict of interest disclosures for each decision process and ensuring that the Steering or Executive Committee (whichever is tasked with the decision in the related process) is made aware of any disclosures associated with that process. The individual may be asked to recuse him or herself from the process if necessary, including for potential conflicts of interest. The Lake Champlain Steering Committee may also determine, by simple majority vote by members present, that a conflict of interest has occurred, and take appropriate steps to ensure that the issue is resolved appropriately.

5. Any Committee member whose organizational entity has submitted a workplan, report or other contractual deliverable to that Committee for review may participate in the discussion of the report, but shall abstain from voting on decisions related to the report.

6. **All LCBP Committee members and external peer reviewers must treat all materials related to an RFP, proposal for LCBP funding, technical work plan review, or grant review process as strictly confidential to the extent allowed by law**. Violation of that confidentiality constitutes a conflict of interest if it potentially gives an unfair advantage to any party ***or*** releases information pertaining to or the identities of applicants or confidential peer reviewers.

7. **Statute of Limitations on Conflicts of Interest from previous places of employment.** Members of the Lake Champlain Steering Committee or LCBP advisory committees and subcommittees will have a conflict of interest if they participate in a decision that affects their former employer within one year of the member's termination from that place of employment. If termination of employment occurred more than one-year prior, the committee member may choose to recuse him/herself if s/he feels his/her prior employment would cause them to be biased.

8. **Conflict of Interest disclosure form.** This guidance document should be reviewed by each LCBP Committee and subcommittee member annually. The disclosure form (below) should be signed by each individual who chooses to participate in a decision process for which they may have a potential conflict of interest.

Potential Conflict of Interest Disclosure (to be submitted on each occasion for which the member has a conflict of interest):

I, _____ have a potential conflict of interest in the following decision process: [describe decision]. The potential conflict of interest is: [describe the situation]. I feel that I should participate in the discussion of this matter because [describe the added benefit that the member will provide] and will not be influenced or biased by this potential conflict of interest. I have discussed this issue with the LCBP and CVNHP Director and the Chair of my LCBP Committee.

Signed: _____ Date: _____

APPENDIX IV. LAKE CHAMPLAIN BASIN PROGRAM ADVISORY COMMITTEE MEMBERS

Steering Committee

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US Environmental Protection Agency Region 1

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Michael Winslow
Chair Technical Advisory Committee

Jason Shea
US Army Corps of Engineers, NY District

Joe Flynn
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Buzz Hoerr
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Michael Schirling
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Victor Putman
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Miro Weinberger
Mayor, City of Burlington

John Krueger
Chair, Heritage Area Program Advisory Committee

Michael Latham
New York State Department of Agriculture & Markets

Daniel Leblanc
Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques

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NY Farm Bureau

Steve Kramer
Miner Institute

Walt Lender
Lake George Association

Vic Putman, Chair
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Champlain Area Trails

Rick Lauren
Citizen

Tom Metz
Citizen

Rocci Aquirre
Adirondack Council

Gene Terry
Washington County Federation of Sportsmen

John Zurlo
Clinton County Office of the County Clerk

Bill Wellman
Citizen

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Andrej Barwicz
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Nathalie Fortin
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Maire de Venise-en-Québec

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Maire de Stanbridge Station

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APPENDIX V. MEMORANDUMS OF UNDERSTANDING RELATED TO LAKE CHAMPLAIN MANAGEMENT:

- Environmental Cooperation on the Management of Lake Champlain (NY, QC, VT MOU - 2015)
- Phosphorus Reduction in Missisquoi Bay (Vermont-Quebec 60/40 agreement)
- Federal Partners to Cooperate and Coordinate on Implementation of *OFA* (2013)
- Section 120 Clean Water Act - 2002 LCBP Re-authorization

The Lake Champlain Basin Program (LCBP) works in partnership with government agencies from Vermont, New York, and Québec, private organizations, local communities, and individuals to coordinate and fund efforts that benefit the Lake Champlain Basin's water quality, fisheries, wetlands, wildlife, recreation, and cultural resources.

The Lake Champlain Steering Committee guides the LCBP's work. Its members includes staff representing state and provincial government in Vermont, New York, and Québec, local government representatives, Citizen Advisory Committee Chairs, the Technical Advisory Committee Chair, the Heritage Area Program Advisory Committee Chair, the Education and Outreach Advisory Committee Chair, several U.S. federal agency representatives, and a Lake Champlain Sea Grant representative.

The LCBP receives funding from the U.S. Environmental Protection Agency, the Great Lakes Fishery Commission, and the National Park Service. The New England Interstate Water Pollution Control Commission (NEIWPCC) manages the financial, contractual, and human resource business operations on behalf of the Lake Champlain Steering Committee. LCBP staff are employees of NEIWPCC.

Visit www.lcbp.org to view the full version of *Opportunities for Action*.

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